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UNITED STATES DEPARTMENT OF THE INTERIOR

FINAL ENVIRONMENTAL STATEMENT

OCS SALE NO. 48 Volume 3 of 5



Proposed
1979 OUTER CONTINENTAL SHELF
OIL AND GAS LEASE SALE
OFFSHORE SOUTHERN CALIFORNIA

Prepared by the
Bureau of Land Management

Frank B. Gregg
Director

IV. MITIGATING MEASURES.....	Page 1355
A. Regulation Enforcement.....	1355
1. Department of the Interior.....	1355
2. Department of Transportation.....	1364
3. U.S. Army Corps of Engineers.....	1365
4. U.S. Environmental Protection Agency.....	1366
5. State of California.....	1367
6. Buffer Zones.....	1368
B. Special Stipulations.....	1371
C. Measures Relating to Specific Aspects of the Proposed or Specific Potential Impacts.....	1379
1. Offshore Structures.....	1379
2. Pipelines.....	1380
3. Onshore Facilities.....	1382
4. Oil Spill Containment and Cleanup.....	1382
D. Other Mitigating Measures.....	1384
1. Measures Related to Military Operations.....	1384
2. Well Control Training Program.....	1384
3. Non-Use of Polychlorinated Biphenyl (PCB) Liquids.....	1385
4. Notices to Lessees and Operators.....	1386
5. Waiver of OCS Orders.....	1390
6. Geophysical Information.....	1391
7. Conservation Practices.....	1392
E. Mitigating Measures Not Currently in Effect.....	1393
1. Regulation of OCS Air Emissions.....	1393
2. Administrative Actions to Mitigate Adverse Impacts....	1397
3. Mitigation of Specific Air Impacts.....	1403
4. Reducing Adverse Platform Visual Impacts.....	1405
V. UNAVOIDABLE ADVERSE EFFECTS.....	1408
A. Marine Organisms and Habitat.....	1408
B. Vegetation.....	1413
C. Wildlife Species and Habitat.....	1414
D. Endangered and Threatened Species.....	1415
E. Channel Islands.....	1416
F. Air Quality.....	1417
1. Santa Barbara and Ventura Counties.....	1417
a. Photochemical Reactive Contaminants.....	1417
b. Inert Contaminants.....	1418

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	Page
2. Los Angeles and Orange Counties.....	1419
a. Photochemical Reactive Contaminants.....	1419
b. Inert Pollutants.....	1420
3. San Diego County.....	1421
a. Photochemically Reactive Contaminants.....	1422
b. Inert Contaminants.....	1422
G. Water Quality.....	1423
H. Commercial Fishing.....	1424
I. Sport Fisheries.....	1425
J. Shipping and Navigation.....	1425
K. Cultural Resources.....	1426
L. Recreation and Tourism.....	1428
M. Esthetic Values.....	1431
N. Land Use.....	1434
O. Socio-Economic.....	1435
P. International, Federal, State, and Local Activities.....	1436
1. International.....	1436
2. Federal.....	1436
3. State and Local Activities.....	1436
VI. RELATIONSHIPS BETWEEN SHORT-TERM USE AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY.....	1437
VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES.....	1439
A. Mineral Resources.....	1439
B. Energy Resources.....	1440
1. Oil.....	1440
2. Natural Gas.....	1441
C. Land Resources.....	1443
D. Biological Resources.....	1444
E. Economic Resources.....	1445
F. Human Resources.....	1445
G. Cultural Resources.....	1446

	Page
VIII. ALTERNATIVES TO THE PROPOSED ACTION.....	1447
A. Hold the Sale in Modified Form.....	1447
1. Establish 3/4 Mile Buffer Zone.....	1301
2. Delete Santa Barbara Channel Area.....	1454
3. Delete Dana Point-San Diego Area.....	1461
4. Delete Santa Rosa Area.....	1465
5. Delete San Pedro Area.....	1468
6.. Delete Santa Barbara Island Area.....	1472
7. Delete Tanner-Cortes Area.....	1475
8. Delete Santa Barbara Channel and Santa Rosa Area Tracts.....	1478
9. Delete San Pedro, San Diego-Dana Point.....	1478
10. Delete Santa Barbara Channel, Santa Rosa, San Pedro and Dana Point-San Diego Areas.....	1486
11. Delete Areas in Traffic Separation Schemes.....	1487
12. San Pedro Precautionary Area Deletions.....	1496
13. Coastal Commission/Lands Commission Alternative.....	1498
14. Delete Tracts North of San Miguel Island.....	1499
15. Marine Sanctuary Tract Deletion Recommendations by the Department of Commerce.....	1502
16. Delete Certain Deep Water Tracts Not Presently Subject to Development Using Conventional Technology.....	1503
B. Delay the Sale.....	1505
C. Withdraw the Sale.....	1507
D. Proposed Stipulations Submitted by Santa Barbara County...	1534
IX. CONSULTATION AND COORDINATION.....	1550
A. Preparation of the Draft Environmental Statement (DES)....	1550
B. Comments Received on the Draft Environmental Statement and BLM Responses to Comments.....	1559
California Coastal Commission	1842
Comprehensive Planning Organization of the San Diego Region	1950
Chevron U.S.A. Inc., Environmental Affairs	1688
City of Laguna Beach - John E. McDowell, Mayor.....	1773
City of Newport Beach - Paul Rykoff, Mayor	1732
County of Orange, Board of Supervisors - Thomas F. Riley, Chairman	1726
County of San Diego, Board of Supervisors	1766
County of San Diego, Integrated Planning Office	1776
County of Santa Barbara	1561
Department of Environmental Resources	
County Board of Supervisors	
Department of Planning	
Air Pollution Control District	
Petroleum Department	

County of Ventura, Board of Supervisors - Edwin A. Jones, Chairman.....	1831
Department of the Army, Los Angeles District, Corps of Engineers.....	1852
Department of the Navy, Office of the Secretary.....	1691
Department of Transportation, United States Coast Guard	1811
Exxon Company, U.S.A., Production Department, Western Div.....	1824
International Bird Rescue Research Center.....	1661
John C. Ljubenkov, University of Southern California, Department of Biological Sciences.....	1675
Marine Mammal Commission.....	1937
Richard A. Nordsiek, El Camino Research.....	1681
Ogle Petroleum Inc.	1665
South Coast Air Quality Management District	1805
Southern California Association of Governments	1729
Southern California Coastal Water Research Project	1702
Shell Oil Company	1734
David D. Smith	1669
State of California, The Resources Agency	1864
Air Resources Board	
State Lands Commission	
State Water Resources Control Board	
Division of Mines and Geology	
Solid Waste Management Board	
Department of Fish and Game	
Department of Parks and Recreation	
Division of Oil and Gas	
United States Department of Commerce.....	1704
Maritime Administration	
National Oceanic and Atmospheric Administration	
United States Department of the Interior, Bureau of Mines	1862
United States Department of the Interior, Fish and Wildlife Service	1698
United States Department of the Interior, Geological Survey	1854
United States Department of the Interior, Heritage Conser- vation and Recreation Service	1849
United States Environmental Protection Agency	1915
C. Public Hearings' Summary.....	2031
D. Endangered Species Consultation and Coordination.....	2035
E. Consultation with California State Historic Preservation Officer	2070

CHAPTER IV

IV. MITIGATING MEASURES

The following measures will mitigate some of the possible adverse impacts resulting from this proposal. These measures are presented as they relate to the jurisdiction of Federal and State agencies to oil spills, offshore structures, pipelines and other impact-producing activities associated with proposed Sale No. 48.

A. Regulation Enforcement

All OCS oil and gas operations will be covered by applicable regulations depending on jurisdictions of County, State and Federal agencies including, but not limited to the U.S. Geological Survey; the U.S. Bureau of Land Management; the U.S. Fish and Wildlife Service; the National Park Service; the U.S. Environmental Protection Agency; the U.S. Army Corps of Engineers; the Department of Defense; the National Marine Fisheries Service; the U.S. Coast Guard; the California State Lands Commission, Division of Oil and Gas; the Regional Water Quality Control Board and appropriate State, regional and County air pollution control agencies. Following is a discussion of some of the mitigating measures that are applied by several of the agencies to OCS operations.

1. Department of the Interior

a. Bureau of Land Management: The Bureau of Land Management in coordination with other Interior agencies has developed "special stipulations" for inclusion in this proposed sale and which are detailed in Section IV.B. If these proposed stipulations are approved by the Secretary, they will be legally binding on all leases issued as a result of this proposed sale.

BLM staff at the field level will review operators' actions and reports for compliance with these stipulations, e.g., archeological and biological survey data. In addition, the BLM environmental studies program will provide information which may be used to prepare Notices to Lessees or changes in the Operating Orders issued by the U.S. Geological Survey over the life of a lease.

Most of the stipulations included in this proposal were initially suggested by BLM. Under requirements of Secretarial Order 2974 (Appendix D) coordinative meetings and discussions were then held at the field level between BLM, NPS, USF&WS and USGS, on the wording and intent of each of the stipulations.

Regulations governing the granting of rights of way for pipelines on the OCS are administered by the Bureau of Land Management. These regulations are contained in Title 43, Subpart.2883 of the Code of

Federal Regulations. Under these regulations pipeline rights of way are limited to 61 m (200 feet) in width and further, may only occupy an area reasonably necessary for pumping stations or other accessory structures.

Coral communities on the OCS are protected under Title 43, Subpart 6224 of the Code of Federal Regulations. "No person shall engage in any operation which directly causes damage or injury to a viable coral community---without having a permit for said operations." This regulation can be used to help mitigate impacts upon coral communities that might otherwise be destroyed in mooring operations, platform placement, pipeline construction, and so on.

b. U.S. Geological Survey-OCS Operating Orders:
The full text of these orders is in Appendix B. The following summarization is provided by USGS.

Regulations governing the safe conduct of mineral operations and development of the OCS are administered by the U.S. Geological Survey. The regulations are contained in Title 30, Part 250 of the Code of Federal Regulations and in the Pacific Area OCS Orders. Orders 1-12 are presently effective with Nos. 13, 14 and 15 possibly to become effective in the future after additional review. Additional or revised OCS Orders may be prepared or revised as need occurs. In the case of violations, leases are subject to cancellation and lessees are subject to penalties as provided for in the OCS Lands Act.

Following is a discussion of the mitigating aspects of the Orders along with a discussion of their effects or impacts.

Pacific Area OCS Order No. 1

This Order requires all platforms, drilling rigs, drilling ships, and wells to have signs of standard specifications for identification of the operator, the specific lease block of operation, and well number.

The purpose of this order is to allow ease of identification of OCS operations and facilities by inspection personnel and the general public. It helps to establish identity of and reference to a well or structure that might be involved in a pollution incident or violation of regulations.

Pacific Area OCS Order No. 2

Order No. 2 concerns procedures in drilling of wells. It requires the operators to file an application for drilling which includes information on the drilling platforms or vessel, casing program,

blowout prevention equipment, well-control training and safety training of operators' personnel, and a list or description of critical drilling operation.

Due to the technical complexity of the Order, not all details are included in describing its mitigatory impact.

All wells must be cased and cemented in order to support unconsolidated sediments, prevent leakage of fluids between formations or pressure changes in the well. If there are indications of improper cementing, the well must be recemented and logs run to indicate proper sealing of the entire annulus. The casing design and setting depths are to be based on all pertinent engineering and geologic factors including the presence or absence of hydrocarbons, potential hazards, and water depths. Additional casing strings may be required if abnormal geopressures are encountered or for initial wells in an untested area. A pressure test is required for all casing strings, except the drive or structural casing, to determine the presence of leaks or inadequate cementing. The use of casing as described in this Order prescribes an effective means to prevent contamination of fresh water zones, lost production, or the possibility of accidents caused by inadequate casing -- oil spills, gas leaks, or explosive situations.

The Order requires that blowout preventers and related well-control equipment must be installed, used and tested in a manner and on a schedule to insure positive blowout prevention. A specific number of these preventers must be used in every well and they must include a fail-safe design, dual control systems, and fail-safe valving on critical lines and outlets. These controls, the requirements for their use, and regular drills and testing, provide a first-line defense against oil spills resulting from blowouts. Of course, even the best designed equipment has been known to fail as a result of human error or mechanical failure, but it is the Department's (DOI) intention to virtually eliminate such occurrence.

The characteristics, use and testing of drilling mud, and the conduct of related drilling procedures shall be such as to prevent the blowout of any well. Sufficient quantities of mud are to be maintained and readily accessible for use at all times to insure proper well control. This part of Order No. 2 will provide additional protection against possible blowouts. The proper use of drilling muds is the primary method of maintaining well control; blowout preventers are a secondary defense actuated when drilling fluids become ineffective.

Representatives of the operator will provide on-the-site supervision of drilling operations on a 24-hour basis. A member of the drilling crew or the toolpusher will maintain surveillance of the rig floor continuously from the time drilling operations commence until the

well is either completed or abandoned. All supervisory personnel, including drillers, must be trained in present-day methods of well control, and records of the training are to be filed with the District Engineer. Weekly blowout prevention drills are required for all rig personnel. These requirements will also substantially reduce the possibility of blowout or other rig accidents in all kinds of weather and provide additional safety margins for all crew members.

Regular directional surveys during drilling are required by the Order and must be filed with the District Engineer. Such data will allow accurate relief-well drilling for blowout control, if necessary.

Procedures to be followed when drilling operations are undertaken to penetrate reservoirs known or expected to contain hydrogen sulfide gas are now included in U.S. Geological Survey OCS Standard No. 1 (GSS-OCS-1) "Safety Requirements for Drilling Operations in a Hydrogen Sulfide Environment." This set of standard operating procedures will assure proper testing and awareness of the crew, though there is no guarantee that accidents will not happen. However, the procedures are designed to prevent accidents and provide a safety margin for the drilling platforms or vessels should H₂S be encountered. Potential H₂S hazards are anticipated and prepared for by the institution of these procedures.

Since some operations performed in drilling are more critical than others with respect to well control, fire, explosion, oil spills or other accidents, each operator must file a Critical Operations and Curtailment Plan for the lease with the District Engineer for approval. This Order requires a list or description of all critical operations or conditions which are likely to be conducted or encountered. The operator must curtail any such operation if a critical condition occurs and notify the Supervisor. This allows the U.S. Geological Survey to either approve the proposed curtailment operation or dispatch personnel to the lease site for observation purposes. This part of OCS Order No. 2 will provide additional governmental control over drilling operations which may be hazardous to the drilling platform, vessel, crew, and the environment (pollutants).

Pacific Area OCS Order No. 3

This Order is established to provide regulation of plugging and abandonment of wells which have been drilled for oil and gas. For permanent abandonment of wells, cement plugs must be placed so as to extend 100 feet above the top and 100 feet below the bottom of fresh water, oil and gas zones to prevent those fluids from escaping into other strata. Portions of a well in which abnormal pressures are encountered are also required to be isolated with cement plugs. Plugs are required at the bottom of the deepest casing below which

an open hole exists. Plugs or cement retainers are required to be placed 100 feet above the top and 100 feet below any perforation interval of the well hole used for production of oil and gas.

A "surface" plug 150 feet long shall be placed 150 feet or less below the ocean floor. A pressure test must be made on the next plug below the surface plug. Spaces between plugs must be filled with drilling muds of sufficient weight to overbalance the greatest formation pressure encountered in drilling each interval. The casing and piling on the sea floor shall be removed to a 5-foot depth below the ocean floor as approved by the Area Supervisor. For temporary abandonments, plugs and mud must be emplaced with the exception of annular space plugging and a surface plug.

The plugging and abandoning procedures as described in this Order have been designed to prevent the contamination of fresh water zones or the possibility of oil and gas leaks from completed wells. As long as these procedures are strictly followed, and cementing materials do not allow fluid migration between formations, then those potential concerns will have been addressed. The requirement that the sea floor above each final abandonment must be cleared and that the removal depths of casing and piling must be examined on a case-by-case basis, will provide protection to navigation and fishing interests. As long as the sea floor is clear of obstruction, there is no possibility that ship anchors or trawl nets will become hung up on them.

Pacific Area OCS Order No. 4

An OCS lease provides for its extension beyond its primary term for as long as oil or gas may be produced in paying quantities provided the operator has met the requirements for diligent development. If these circumstances should occur, the lease can be extended beyond its initial term, pursuant to Section 8(b) (2) of the OCS Lands Act and Title 30 CFR 250.11 and 250.12(d) (1). In addition, an OCS lease may be maintained beyond the primary term, in the absence of actual production, when a suspension of production has been approved by the Supervisor. Order No. 4 defines the conditions and requirements for such suspensions.

The U.S. Geological Survey believes that drill core and electric log data are indicators of the presence of oil but such data alone do not prove whether or not the well can be produced in commercial quantities. Hence, a production test of two-hours duration or more is to be required. A production test of similar duration is required for gas. All pertinent engineering, geologic and economic data are required to support a claim that a well is capable of being produced in commercial quantities. Each test must be witnessed by the U.S. Geological Survey, although under certain circumstances, an operator's

affidavit or a third-party test may be acceptable. The purpose of this Order is to assure that a well is capable of producing oil or gas prior to granting an extension of the lease.

Pacific Area OCS Order No. 5

This Order sets regulations for the installation, design, testing, operation, and removal of subsurface safety devices.

Order No. 5 requires that all well-tubing installations open to hydrocarbon-bearing zones shall be equipped with a surface controlled, subsurface safety device that is placed 100 feet or more below the ocean floor. Testing of the device must take place at intervals not exceeding six months. If the valve does not operate correctly, it must be promptly removed, repaired, reinstalled, or replaced with a properly operating device and tested. In a case where a subsurface safety device has been removed for repair or replacement, a standby device or tubing plug must be on hand and ready for immediate emergency installation.

Records must be kept of all subsurface safety devices employed at each well and be submitted semi-annually to the District Engineer.

This Order supplements Order No. 2 by stipulating the various conditions of subsurface safety device use. It also assures periodic testing of the devices to ensure their reliability. By doing so, blowout risks and the potential for spills and their adverse environmental impacts are reduced.

Pacific Area OCS Order No. 6

This Order pertains to procedures for completion of oil and gas wells. Wellhead equipment such as casingheads, wellhead fittings, valves and connections are specified and rating requirements are noted here. Testing procedures for wells and subsurface safety devices are also specified in the Order along with methods for multiple or tubingless completions.

This Order provides for protection of the well during completion workover or production operations and hence reduces the possibility of environmental degradation from uncontrolled release of hydrocarbons.

Pacific Area OCS Order No. 7

Order No. 7 concerns the control of pollution to the marine environment and provides regulations for the disposal of waste materials generated as a result of offshore operations.

OCS Order No. 7 sets forth a means to effectively deal with pollution of the marine environment from offshore petroleum operations. It states that the operator must prevent pollution of land or the ocean and that his operations must not create conditions that can adversely affect public or private property, aquatic life or wildlife, recreation, navigation or other uses of the ocean. Oil is prohibited from being discharged to the ocean waters and discharge of produced waste water, sewage, and toxic substances are carefully regulated per requirement of the Order. Drill cuttings, sand, miscellaneous solids, or muds containing free oil will not be disposed of into the ocean and toxic substances must be neutralized prior to disposal. Through these requirements, the impacts to the environment of drilling muds, produced waste water and all other discharges are controlled.

No solid waste materials or debris can be disposed of in the marine environment but must be transported to shore for disposal according to governmental regulations; this requirement addresses the potential problems which could be posed to shipping or fisheries use of the OCS should debris foul the sea floor. In spite of regulations to the contrary, there is no guarantee that some materials might not be lost overboard, particularly in the case of emergency.

All personnel must be thoroughly instructed in the prevention of pollution from offshore operations. Rigorous pollution inspection schedules are required for all facilities. Pollution reports are necessary for all oil spills with notification of proper authorities. Pollution control equipment must be maintained by or available to each operator. The equipment must include booms, skimmers, cleanup materials, and chemical agents (though chemical agents can only be used with the express consent of the Supervisor) and it must be regularly inspected and properly maintained. Any application for a drilling permit must include an oil spill contingency plan with provisions for varying degrees of response effort depending on severity of oil spill; identification of containment and cleanup equipment availability; notification procedures of responsible persons and alternates in the eventuality of a spill; and provision for specific actions to be taken after discovery and notification of an oil discharge. Should a spill occur, immediate corrective action must be taken. This Order requires the maximizing of protection available for the prevention and cleanup of oil spills. It provides strong mitigation of the occurrence and effects of spills, reducing as best as possible, impacts of oil spills to the environment, including biological communities, shoreline resources, and commercial and recreational uses of the OCS.

Pacific Area OCS Order No. 8

This Order requires that platforms, fixed structures and artificial islands be designed with consideration for geological, geographical,

environmental and operational conditions. Prior to structural approval by the Supervisor, detailed design and stress load data must be submitted to the USGS. Certification of structural adequacy by a registered professional engineer is required by the Order.

OCS Order No. 8 specifies safety and pollution control equipment such as high and low pressure and liquid level sensors and required test procedures. Also required are various automatic fail-close and shut-in valves in wellhead assemblies. Test procedures and schedules are also specified for this equipment.

Water pollution is prevented by requiring curbs, drains, gutters and drip pans for all equipment. Waste water discharge must not create conditions which adversely affect public health or the use of the water for propagation of aquatic life, recreation, navigation, or other legitimate uses. Produced waste water oil content is limited to 50 ppm maximum. Sewage disposal systems are required to treat effluent to 50 ppm or less of biochemical oxygen demand, 150 ppm or less of suspended solids, and 1.0 mg/liter minimum chlorine residual after a 15-minute retention time. All discharges must be monitored on a specified schedule and records maintained.

Standards for firefighting systems installation, design, testing and maintenance are set forth in the Order. Gas detection systems to warn of impending dangerous fire or explosive conditions are also required to complement the full range of firefighting apparatus. All electrical equipment must meet explosion and fire hazard requirements. Procedures for welding and burning on OCS structures are also specified.

All the design, safety, pollution, firefighting and welding requirements of this Order are designed to greatly reduce the likelihood of undesirable occurrences that can cause injury or pollution due to uncontrolled or inadvertent discharge of oil or other pollutants to the environment.

Pacific Area OCS Order No. 9

OCS Order No. 9 provides approval procedures for oil and gas pipelines on the OCS. All pipelines and related equipment must be designed and maintained with high-low pressure sensors, automatic shut-in valves, check-flow valves (to control backflow), and metering systems to detect input/output variances (leakage). The Order also requires cathodic corrosion protection, trawling compatibility, hydrostatic testing, storm scouring and other environmental stresses to be adequately provided for in OCS pipelines. Procedures and schedules for regular inspection of pipelines along with recording of such inspections are stipulated.

All pipeline applications must be submitted to the District Engineer and require approval by the Supervisor. They are required to contain plats with water depth, route, location, length, connecting and pumping facilities, size, grade of pipe, burial depth (when necessary), products (gravity, etc.) to be transported, corrosion provisions, pressure, bouyancy conditions, etc.

This Order is intended to afford increased protection to the environment by decreasing the possibility of impacts from pipeline failure oil spills.

Pacific Area OCS Order No. 10

OCS Order No. 10 provides for drilling twin core holes located adjacent to core holes drilled on the OCS under earlier California State authorization. Such holes were drilled prior to the establishment of Federal authority beyond the 3-mile limit.

The new core holes, or twin core holes, can be drilled only within 100 feet of the earlier ones when beyond the 3-mile limit. If near, but within the 3-mile limit, the Supervisor may prescribe the location beyond the 3-mile limit for the twin. The purpose of these twin core holes is to allow Federal permittees to obtain geological data equivalent to that earlier obtained under State permits.

The Order details requirements and restrictions necessary for the twin holes. Normal safety and environmental safeguards are required for the new holes and hence the likelihood of environmental impact from oil and gas spills or blowouts are minimized.

Pacific Area OCS Order No. 11

This Order provides for prevention of waste, conservation of oil and gas resources, and protection of correlative rights by defining and setting standards for rates of production, production testing procedures, and joint production requirements.

OCS Order No. 11 defines the various terms associated with oil and gas production such as reservoir classifications, maximum efficient rates (MER), maximum production rates (MPR), etc. Submittal, reporting and revision procedures of MER's and MPR's are also set out in the Order. Balancing and testing procedures and schedules are provided to assure adherence to MER's and MPR's as approved by the Supervisor. Witnessing of tests, flaring restrictions, well completion numbering procedures, multiple and selective completion requirements, and gas cap completions also addressed.

Enhanced oil and gas recovery operations are required by the Order whenever indicated from an engineering and economic standpoint.

Competitive reservoir operations are dealt with, including unitization determinations by the Conservation Manager and appeals of decisions and classifications.

The impacts of this Order are mainly economic in that it encourages maximizing ultimate recovery of Federal oil and gas lease resources. Such maximization of recovery is assured by requiring establishment of MER's and MPR's, conservation, well spacing, unitization, and other procedures which enhance economic return from public lands mineral resources.

Pacific Area OCS Order No. 12

The purpose of this Order is to make the records of the Department of the Interior available to the public to the greatest extent possible in keeping with the spirit of the Freedom of Information Act. Operators are required to submit records pertaining to leases and wells to the Geological Survey. These records are then available for public inspection except those portions which have been determined as exempt from disclosure. "Geological and geophysical information and data including maps concerning wells" are examples of exempt information. All monthly operations reports, accident investigation reports, pollution-incident reports, facilities inspection data, and reports of enforcement actions are available for public inspection.

One requirement of the Order is that all information contained in well completion reports except two items, the summary of porous zones and geologic markers, must be made available to the public after production commences. Non-proprietary OCS-operator and Survey-generated data are also available to the public on request.

2. Department of Transportation

a. U.S. Coast Guard: The OCS Lands Act delegates to the Coast Guard the authority to promulgate and enforce regulations covering warning devices, safety equipment and other matters related to the promotion of safety of life and property on fixed OCS platforms and drilling vessels. The implementing regulations for this delegation are contained in Title 33 of the Code of Federal Regulations, Part 67 and Subchapter N, Parts 140 to 147. Other Coast Guard regulations cover safety equipment on all types of offshore facilities and vessels, specific personnel licensing procedures, and minimum levels for ships and boats, and prohibit the discharge of pollutants from all vessels.

Lead Coast Guard responsibility resulting from this proposed lease sale will be undertaken by the 11th Coast Guard District (Long Beach) since all of the proposed lease tracts are contained in their jurisdiction. Certification of vessels (both boats and rigs) will

depend on most recent certification date and operations port. The Coast Guard's responsibility as to oil spill containment and cleanup is discussed under Section II.H.5.

The Coast Guard conducts 2 to 3 flights per week over the Bight to check for oil pollution from ships, pipelines and offshore structures. They also monitor natural seeps during these flights.

As standard procedure, the Army Corps of Engineers will request comments from the Coast Guard on the placement of offshore rigs and platforms with respect to interference with navigation. Though no specific regulations are in force, the Corps of Engineers generally does not allow structures to be placed within traffic lanes as identified by the Coast Guard.

b. Office of Pipeline Safety: The Office of Pipeline Safety Operations within the Materials Transportation Bureau supervises safety of gas and oil pipelines including the establishment of design criteria for pipeline systems on the OCS. The Department of Transportation is authorized under the Natural Gas Pipeline Safety Act of 1968 (49 U.S.C. Secs. 1671, et seq.) to establish gas pipeline safety standards for transportation of gas and for pipeline facilities. Gathering, transmission or distribution by pipeline or storage in or affecting interstate or foreign commerce is included in the meaning of transportation of gas. The Secretary of Transportation is authorized to advise, assist and cooperate with other Federal departments in the planning and development of the standards and in methods for inspecting and testing to determine compliance with the standards. Regulations implementing the department's authority for gas and oil pipelines are found in 49 CFR Parts 192 and 195. Recent regulations by the MTB more clearly delineate criteria for safety standards for offshore liquid pipelines (including burial depths), (41 Federal Register 34035), and for offshore natural and other gas pipelines (41 Federal Register 34598). New regulations were also issued in 1975 (Federal Register 40, No. 91, May 9, 1975) requiring odorizing of gas transmission lines by class location (class determined by population in the area).

3. U.S. Army Corps of Engineers: The OCS Lands Act provides that the authority of the Secretary of the Army to prevent obstruction to navigation in the navigable waters of the United States be extended to structures located in the OCS. The Corps of Engineers implements this delegated authority by issuing navigational permits for exploration drilling vessels and fixed and mobile platforms according to 33 CFR 209.120 as amended by the July 25, 1975 Federal Register, pages 31320 et seq. In the event this proposed sale is held permits will be processed by the Corps of Engineers, Los Angeles District.

In evaluating the permit application, Corps of Engineers officials will consider the following policies (from 33 CFR 209.120):

Artificial islands and fixed structures located on the outer continental shelf are subject to the standard permit procedures of this regulation. Where the islands or structures are to be constructed on lands which are under mineral lease from the Bureau of Land Management, Department of the Interior, that agency, in cooperation with other Federal agencies, fully evaluates the potential effect of the leasing program on the total environment. Accordingly, the decision whether to issue a permit on lands which are under mineral lease from the Department of the Interior will be limited to an evaluation of the impact of the proposed work on navigation and national security. The public notice will so identify the criteria.

4. U.S. Environmental Protection Agency: Produced wastewater is an unavoidable consequence of producing oil and gas. Presently the Environmental Protection Agency, the Geological Survey and offshore operators in the other OCS operating areas are in the process of determining the best method from an environmental protection standpoint of treating and disposing of produced wastewater. The Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-550; 86 Stat. 816, hereinafter the Act), makes the discharge of any pollutant by any person, except in compliance with certain sections of the Act, unlawful. The 1977 Clean Water Act Amendments to the FWPCA provide statutory authorization for cleanup liability costs for oil spills not to exceed \$50,000,000 (Section 311.f.3 of the Act as amended in 1977). A National Pollutant Discharge Elimination System (hereinafter NPDES) was created by Section 402, and made applicable to discharges into the territorial sea, the waters of the contiguous zone, and the oceans. Permits for discharges will be issued by the Administrator (Environmental Protection Agency) in compliance with guidelines promulgated by him. While the NPDES appears to apply to fixed platforms and structures, it does not apply to 1) addition of any pollutant to the waters of the contiguous zone or the ocean from any vessel or floating craft, or 2) water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well. Regulations governing the NPDES may be found in 40 CFR, Part 125, 38 Federal Register 13528 (1973), and the guidelines issued pursuant to Section 403(c) of the act are found in 40 CFR, Part 227; 38 Federal Register 12872 (1973); 40 CFR, Part 435; 40 Federal Register 42572 and 42543 (1975). Subsurface injection into OCS platform wells is in accordance with Environmental Protection Agency suggested guidelines and is subject to Geological Survey approval and regulation.

The EPA office involved as a result of this proposed sale would be Region IX (San Francisco).

5. State of California

a. Environmental Quality Act: The California Environmental Quality Act (CEQA) of 1970 requires all State and local government agencies to prepare environmental impact reports for all public and private projects, which may have a significant effect on the environment in areas of State jurisdiction. The proposed Federal action of leasing 217 tracts in the Southern California Borderland does not fall under State jurisdiction. It is possible, however, that onshore activities could result from the proposed action which could require the preparation of a State EIR. This is not to say that the Act is a mitigatory measure itself, but that the activity would be subject to the guidelines and procedures set forth in the Act.

b. California Coastal Program: The California Coastal Program places restrictions on development in the coastal zone. Any activity determined to significantly affect the coastal zone or any OCS related onshore development would be coordinated with the approved coastal plan.

c. Other Regulations: Onshore and nearshore (within the three-mile limit) operations resulting from this proposed sale would comply with applicable regulations of the California State Lands Commission and Division of Oil and Gas, the Regional Water Quality Control Board and the State Air Resources Board. The California Fish and Game Code (Section 5650) prohibits the passage of any petroleum in State coastal waters and the State Harbors and Navigation Code (Section 133) establishes penalties for discharging oil from any vessel into State waters.

6. Buffer Zones: The Santa Barbara Channel Ecological Preserve consists of the Federal Ecological Preserve and a Buffer Zone (Figure IV.A.6-1). Neither the Buffer Zone nor the Federal Ecological Preserve were created to safeguard a biological resource. However, the Buffer Zone does increase the distance between potential drilling areas and the coast and, therefore, helps mitigate potential impacts.

Because the history of and reasons for establishing these two areas are often misunderstood, the following brief history is included. (This discussion is taken from Department of the Interior's DES No. 75 Oil and Gas Development in the Santa Barbara Channel Outer Continental Shelf Off California.)

The California State oil drilling sanctuary was established under the Cunningham-Shell Tideland Act, Section 6871.2 of the Public Resources Code, in December, 1955. The sanctuary, located seaward of Goleta Valley and the cities of Santa Barbara and Montecity, is 16 miles long and extends out to the 3-mile limit. Oil production within the sanctuary is permitted only if the State Lands Commission finds that oil reserves within the sanctuary are being drained from land or water areas outside of the sanctuary.

In October, 1966, the Federal government requested nominations of blocks of the Santa Barbara Channel OCS that should be offered for lease for petroleum development. The deadline for nominations, to be submitted to the Department of the Interior, Bureau of Land Management, was set at March 1, 1967.

On February 28, 1967, a group of County officials and representatives from the City of Carpinteria and City of Santa Barbara met with Assistant Secretary of the Interior, J. Cordell Moore, in Washington. The purpose of this conference was to convey to Interior Department officials the concern of the people of Santa Barbara County that uncontrolled construction of oil production platforms would have a detrimental effect on the aesthetic values of the South Coast area, resulting in harm to the tourist, convention, and vacation industry, as well as affecting the desirability of this area from a residential standpoint. In addition, the delegation pointed out that unless the Federal government prohibited drilling near the sanctuary, the State might claim that wells on the Federal leases were draining oil pools in the State tidelands which would then permit the State to open up the tidelands to oil drilling. Such an action would negate the protection from close-in platforms which the sanctuary provides. The Assistant Secretary of the Interior agreed to study the peculiar problem of this coastal area and to make recommendations for safeguards in the Federal leases to protect the aesthetics, health, and safety of the shoreline area and its residents.

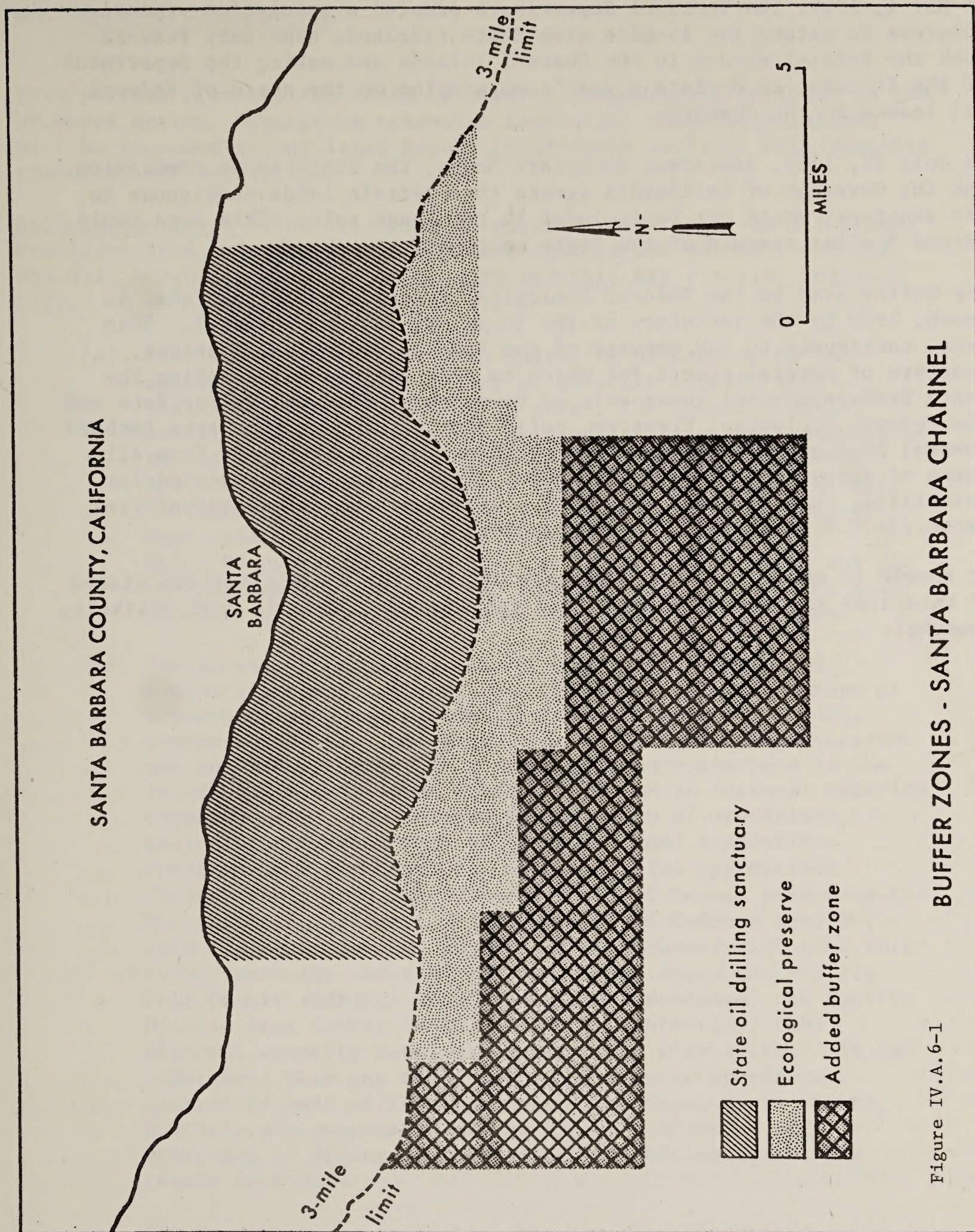


Figure IV.A.6-1

BUFFER ZONES - SANTA BARBARA CHANNEL

On May 1, 1967, the Board of Supervisors adopted a resolution urging Congress to extend the 16-mile wide State tidelands sanctuary seaward over the Federal waters to the Channel Islands and asking the Department of the Interior to declare a year's moratorium on the award of Federal oil leases in the Channel.

On July 27, 1967, Assistant Secretary Moore, the State Lands Commission, and the Governor of California agreed that certain lands contiguous to the sanctuary would not be included in the lease sale. This area would extend 2 miles seaward of the State sanctuary.

The Buffer Zone to the Federal Ecological Preserve was established in March, 1969 by the Secretary of the Interior, Walter J. Hickel. This area, contiguous to and seaward of the Federal Ecological Preserve, consists of several tracts for which no bids were received during the Santa Barbara Channel lease sale of February, 1968. The Buffer Zone and the Federal Ecological Preserve, collectively known as the Santa Barbara Channel Ecological Preserve, were withdrawn by the Secretary from all forms of deposition, including mineral leasing, and were reserved for scientific, recreational, and other similar uses as an ecological preserve (34 F.R. 5655-5656, March 26, 1969).

It should be noted that the Secretary of Interior could alter the status of this area and open it for oil and gas leasing. This is most unlikely, however.

B. Special Stipulations

This section presents the texts of special stipulations included in the proposed action. Except as otherwise indicated, these stipulations will be included in any lease issued to mitigate conflict with specific resources and activities.

Stipulation No. 1 (The following stipulation will apply to all leases resulting from this lease sale in tract numbers SBC 001-045, 048-062, 066-074, 077-086, 088-096, 098-103; SR 109-114; SBI 115-119; TCB 167-217).

- (a) The lessee agrees that when operating or causing to be operating on its behalf boat or aircraft traffic into individual designated warning areas, the lessee shall coordinate and comply with instructions from the Commander of the appropriate onshore military installation, i.e., the Space and Missile Test Center (SAMTEC), the Pacific Missile Test Center (PMTTC), or other appropriate military agency, when utilizing an individual designated warning area prior to commencing such traffic. Such coordination and instruction will provide for positive control of boats and aircraft operating into the warning areas at all times.
- (b) The lessee, recognizing that mineral explorations and exploitation and recovery operations on the leased areas of submerged lands can impede tactical military operations, hereby recognizes and agrees that the United States reserves and has the right to temporarily suspend operations of the lessee under this lease in the interests of national security requirements. Such temporary suspension of operations, including the evacuation of personnel, and appropriate sheltering of personnel not evacuated, (an appropriate shelter shall mean the protection of all lessee personnel for the entire duration of any Department of Defense activity from flying or falling objects or substances) will come into effect upon the order of the Commander, Space and Missile Test Center (SAMTEC) or his authorized designee, the Pacific Missile Test Center (PMTTC), or higher authority, that national security interests necessitate such action. It is understood that any temporary suspension of operations ordered by said official may not exceed seventy-two hours, however, any suspension may be extended by order of the Secretary of Defense. During such periods equipment may remain in place.
- (c) The lessee agrees to control his own electromagnetic emissions and those of his agents, employees, invitees,

independent contractors or subcontractors emanating from individual designated defense warning areas in accordance with requirements specified by the Commander of the appropriate onshore military installation i.e., the Western Area Frequency Coordinator located at the Space and Missile Test Center (SAMTEC), and the Pacific Missile Test Center (PMTC), or other appropriate military agency, to the degree necessary to prevent damage to, or unacceptable interference with, Department of Defense flight, testing or operational activities conducted within individual designated warning areas. Necessary monitoring, control, and coordination with the lessee, his agents, employees, invitees, independent contractors or subcontractors, will be effected by the Commander of the appropriate onshore military installation conducting operations in the particular warning area: Provided, however, that control of such electromagnetic emissions shall permit at least one continuous channel of communication between a lessee, its agents, employees, invitees, independent contractors or subcontractors and onshore facilities.

- (d) Additionally, section (c) of this stipulation: (1) shall apply to tract numbers DP-SD 141-166 and TCB 167-217. For these tracts, the Commanding Officer Fleet Area Control and Surveillance Facility (FACSFAC) will replace SAMTEC and PMTC as the prime agency for control; (2) for tract numbers TCB 167-217 coordination with the Commanding Officer Fleet Area Control and Surveillance (FACSFAC) is required in addition to SAMTEC and PMTC.

Stipulation No. 2 (In order to indemnify and save harmless the United States, the following stipulation will apply to leases resulting from this lease sale in tract numbers SBC 001-045, 047-062, 066-074, 077-086, 088-096, 098-103; SR 109-114; SBI 115-119; TCB 167-217; SP-DP 141-166.)

Whether or not compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, the lessee assumes all risks of damage or injury to persons or property, which occurs in, on, or above the Outer Continental Shelf, to any person or persons or to any property of any person or persons who are agents, employees or invitees of the lessee, its agents, independent contractors or subcontractors doing business with the lessee in connection with any activities being performed by the lessee in, on, or above the Outer Continental Shelf, if such injury or damage to such person or property occurs by reason of the activities of any agency of the U. S. Government, its contractors or subcontractors, or any of their officers, agents or employees, being conducted as a part of, or in connection with, the programs and activities of the Space and Missile Test Center (SAMTEC), the Pacific Missile Test Center (PMTC), or other appropriate military agency.

The lessee assumes the risk whether such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or

fault, of the United States, its contractors or subcontractors, or any of their officers, agents, or employees. The lessee further agrees to indemnify and save harmless the United States against all claims for loss, damage, or injury sustained by the lessee, and to indemnify and save harmless the United States against all claims for loss, damage, or injury sustained by the agents, employees, or invitees of the lessee, its agents or any independent contractors or subcontractors doing business with the lessee in connection with the programs and activities of the aforementioned military installations and agencies, whether the same be caused in whole or in part by the negligence or fault of the United States, its contractors, or subcontractors, or any of their officers, agents, or employees and whether such claims might be sustained under theories of strict or absolute liability or otherwise.

Stipulation No. 3 (To apply to all leases resulting from this lease sale).

If the Supervisor, having reason to believe that a site, structure or object of historical or archaeological significance, hereinafter referred to as a "cultural resource", may exist in the lease area, gives the lessee written notice that the lessor is invoking the provisions of this stipulation, the lessee shall upon receipt of such notice comply with the following requirements:

Prior to any drilling activity or the construction or placement of any structure for exploration or development on the lease, including but not limited to, well drilling and pipeline platform placement, hereinafter in this stipulation referred to as "operation", the lessee shall conduct remote sensing surveys to determine the potential existence of any cultural resource that may be affected by such operations. All data produced by such remote sensing surveys as well as other pertinent natural and cultural environmental data shall be examined by a qualified marine survey archaeologist to determine if indications are present suggesting the existence of a cultural resource that may be adversely affected by any lease operation. A report of this survey and assessment prepared by the marine survey archaeologist shall be submitted by the lessee to the Supervisor and the Manager, Bureau of Land Management (BLM) Outer Continental Shelf (OCS) Office for review.

If such cultural resource indicators are present the lessee shall (1) locate the site of such operation so as not to adversely affect the identified location; or (2) establish, to the satisfaction of the Supervisor, on the basis of further archaeological investigation conducted by a qualified marine survey archaeologist or underwater archaeologist using such survey equipment and techniques as deemed necessary by the Supervisor, either that such operation shall not adversely affect the location identified or that the potential cultural resource suggested by the occurrence of the indicators does not exist.

A report of this investigation prepared by the marine survey archaeologist or underwater archaeologist shall be submitted to the Supervisor and the Manager, BLM OCS Office for their review. Should the Supervisor determine that the existence of a cultural resource which may be adversely affected by such operation is sufficiently established to warrant protection, the lessee shall take no action that may result in an adverse effect on such cultural resource until the Supervisor has given directions as to its preservation.

The lessee agrees that if any site, structure, or object of historical or archaeological significance should be discovered during the conduct of any operations on the leased area, he shall report immediately such findings to the Supervisor and make every reasonable effort to preserve and protect the cultural resource from damage until the Supervisor has given directions as to its preservation.

Stipulation No. 4 Being all or part within established or developing commercial trawl grounds, this stipulation is to be applied to leases resulting from this sale for all or part of tracts SBC 001-108.

- (a) Wells: Subsea well heads and temporary abandonments, or suspended operations that leave protrusions above the sea floor, shall be protected, if feasible, by a shroud which will allow commercial trawl gear to pass over the structure without snagging or otherwise damaging the structure or the fishing gear. Latitude and longitude coordinates of these structures along with water depths, shall be submitted to the Supervisor. The coordinates of such structures will be determined by the lessee utilizing state-of-the-art navigation systems with accuracy of at least +50 feet (15.25 meters) at 200 miles (322 kilometers).
- (b) Pipelines; All pipelines, unless buried, including gathering lines, shall have a smooth-surface design. In the event that an irregular pipe surface is unavoidable due to the need for valves, anodes or other structures, they shall be protected by shrouds which will allow trawl gear to pass over the object without snagging or otherwise damaging the structure or the fishing gear.

Stipulation No. 5 (To apply to all leases resulting from this lease sale to prevent detrimental impact upon any newly discovered area of special biological interest).

- (a) Areas of special biological interest contain biological communities or species of such extraordinary or unusual value (even though unquantifiable) such that no threat of damage, injury, or other harm to the community or species would be

acceptable. These areas may include:

- 1) Areas containing very unusual, rare, or uncommon ecosystems, including ecotones.
 - 2) Areas of abundant numbers and/or high diversity of species.
 - 3) Areas containing species of limited regional distribution due to natural range or significantly reduced populations.
 - 4) Areas critical to the life cycle of species, such as migratory, reproduction, and feeding areas. Especially important species, at this time, include marine mammals and marine birds.
- (b) If the Supervisor has reason to believe that such a site of special biological interest may exist in the lease area, he shall give the lessee written notice that the lessor is invoking the provisions of this stipulation and the lessee shall comply with the following requirements: Prior to any drilling activity or the construction or placement of any structure for exploration or development on lease areas including, but not limited to, well drilling and pipeline and platform placement, hereinafter referred to as "operation", the lessee shall conduct site specific surveys as approved by the Supervisor and in accordance with prescribed minimum biological survey requirements to determine the existence of any special biological resource including but not limited to:
- 1) Very unusual, rare, or uncommon ecosystems or ecotones
 - 2) A species of limited regional distribution that may be adversely affected by any lease operation.

If the results of such surveys suggest the existence of a special biological resource that may be adversely affected by any lease operation, the lessee shall: 1) relocate the site of such operation so as not to adversely affect the resource identified; 2) establish, to the satisfaction of the Supervisor, on the basis of the site-specific survey, either that such operation will not have a significant adverse effect upon the resource identified or that a special biological resource does not exist.

The Supervisor will review all data submitted and determine, in writing, whether a special biological resource exists or may be significantly affected by lessee's operations. The lessee may take no action until the Supervisor has given the lessee written directions on how to proceed.

- (c) The lessee agrees that if any area of biological significance should be discovered during the conduct of any operations on the leased area, he shall report immediately such findings to the Supervisor, and make every reasonable effort to preserve and protect the biological resource from damage until the Supervisor has given the lessee directions with respect to its protection.

Stipulation No. 6 ((Transport of Oil and Gas) - to apply to all leases resulting from this sale).

- (a) Pipelines will be required, 1) if pipeline right-of-way can be determined and obtained, 2) if laying such pipelines is technically feasible and environmentally preferable, and 3) if, in the opinion of the lessor, pipelines can be laid without net social loss, taking into account any incremental costs of pipelines over alternative methods of transportation and any incremental benefits in the form of increased environmental protection or reduced multiple use conflicts. The lessor specifically reserves the right to require that any pipeline used for transporting production to shore be placed in certain designated management areas. In selecting the means of transportation, consideration will be given to any recommendation of the intergovernmental planning program for leasing and management of transportation of Outer Continental Shelf oil and gas with the participation of Federal, State, and local government and the industry. Where feasible, and environmentally preferable, all pipelines, including both flow lines and gathering lines for oil and gas, shall be buried to a depth suitable for adequate protection from water currents, sand waves, storm scouring, fisheries trawling gear, and other uses as determined on a case-by-case basis.
- (b) Following the completion of pipeline installation, no crude oil production will be transported by surface vessel from offshore production sites, except in the case of emergency. Determinations as to emergency conditions and appropriate responses to these conditions will be made by the Supervisor. Where the three criteria set forth in the first sentence of this stipulation are not met and surface transportation must be employed:
- (c) All vessels used for carrying hydrocarbons to shore from the leased area will conform with all standards established for such vessels, pursuant to the Ports and Waterways Safety Act of 1972 (46 U.S.C., 391a).

Stipulation No. 7 (To help mitigate the impacts of physical disruption and sedimentation on the significant (productive rocky bottom) biological communities of Cortes Banks, which include large concentrations of the hydrocoral *Allopora californica*, this stipulation shall apply to all leases resulting from this lease sale in the following tracts on Tanner and Cortes Bank: TCB 182, 183, 191, 197, 199, 200, 203, 204, 206 through 213).

The lessee shall not, during any phase of operations, discharge drill cuttings, drilling muds, garbage, untreated sewage, or other solid waste within the 80-meter isobath, or within a buffer zone defined by the area 1,500 meters from the 80-meter isobath. Also, any produced formation water which may be discharged into the sea must be analyzed for salinity, heavy metals, and hydrocarbons. Toxicity tests must be performed. A decision, based upon these analyses and upon the volume of discharge, shall then be made by the area supervisor, USGS, as to whether the formation waters should be discharged into the sea or disposed of by any other means acceptable by the Supervisor. If there is any question regarding the effect of the formation water upon local marine life, the lessee shall not discharge formation waters within the 80-meters isobath or within the buffer zone defined by the area, 1,500 meters from the 80-meter isobath. In addition, the lessee shall conduct a site specific biological survey approved by the Supervisor which is in accordance with prescribed minimum biological survey requirements prior to placing anchors, moorings, bottom-founded vessels or platforms, pipelines or other structures in areas having water depths shallower than 80 meters.

Based upon results of the survey, the lessee may be required to: 1) relocate the site of such operations so as not to adversely affect the area identified; or 2) modify his operations in such a way as not to adversely affect the area identified; or 3) establish to the satisfaction of the Supervisor that, on the basis of the biological survey, such operations will not adversely affect the area.

The lessee shall submit all data obtained in the course of biological surveys, conducted pursuant to this stipulation, to the Supervisor. The lessee shall take no action that may result in any effect on this biologically significant area until the Supervisor has given the lessee written approval of operations for the area, and the lessee has complied with the requirements of 43 CFR 6224 (Protection and Management of Viable Coral Communities on the

Outer Continental Shelf). If any phase of operations are shown to be adversely affecting the area of the significant biological communities identified, the lessee shall immediately cease or, with the Supervisor's approval, modify his operations by undertaking any measures deemed economically, environmentally, and technologically feasible to halt or mitigate such adverse effect. These measures may include, but are not limited to, the monitoring of the significant biological communities identified to assess the adequacy of any mitigating measures taken, and the impact of lessee-initiated activities.

C. Measures Relating to Specific Aspects of the Proposal
or Specific Potential Impacts

1. Offshore Structures: There are several proposed Sale No. 48 tracts that are located inside the two existing Coast Guard-established Traffic Separation Schemes (Figure III.A.3.1). Traffic Separation Schemes (TTS) consist of an inbound and outbound traffic lane that are divided by a separation zone. Santa Barbara Channel and Gulf of Santa Catalina are the two TSS.

The U.S. Coast Guard has the authority to promulgate and enforce regulations concerning safety of life and properties on fixed structures. As standard procedure, the Army Corps of Engineers will request comments on application for placement of fixed structures from various agencies as the Coast Guard, Fish and Wildlife Service, National Marine Fisheries Service, Geological Survey, Bureau of Land Management, appropriate State agencies, etc. Though no specific regulations are in force, the Corps of Engineers generally, except in the Gulf of Santa Catalina TSS, does not allow fixed structures to be placed within the TSS traffic lanes. Exploratory drilling would be permitted under the drilling guideline "Permits for Exploratory Drilling in the Gulf of Santa Catalina, California" (Federal Register, June 7, 1977). This guideline was published for review and is still being evaluated.

New Section 21 of the OCS Lands Act (Section 208 of Amendments, Part (a)) requires a study to be made by the Secretary of the Interior and the Secretary of Transportation of existing safety and health regulations (for adequacy); the study is to be sent to the President, who is to "submit a plan to Congress of his proposals to promote safety and health in the exploration, development and production of the Outer Continental Shelf."

Part (b) requires on all new drilling and production operations the use of the best available and safest technologies which he determines to be economically feasible.

Three special stipulations (IV.B) that concern fixed structures are: No. 3, cultural resources; No. 4, commercial trawl fishing; and No. 5, areas of special biological interest. Stipulation No. 3 provides protection of cultural resources during construction of a fixed structure. If the Supervisor has reason to believe that a cultural resource may exist near the proposed fixed structure, a cultural survey must be made.

Stipulation No. 4 concerns protection for commercial trawl fisherman from subsea completion systems (SSCS). A protective shroud should cover the SSCS to prevent damages to the trawl and SSCS.

Stipulation No. 5 protects areas of special biological interest. If the Supervisor has reason to believe that a site of special biological interest may exist in the vicinity of the proposed fixed structure, a site specific survey must be made prior to start of construction.

Platforms are designed for removal after their operational life. Following the depletion of all producing zones developed from a platform, wells will be plugged and abandoned, drilling and production equipment dismantled and removed, the deck units removed, well conductors and platform piling will be cut below the mudline and removed, and the site restored in accordance with permit requirements (30 CFR250.18.(d)).

OCS Order Nos. 7 and 8 and Environmental Protection Agency (EPA) regulations prohibit the disposal of solid waste offshore from operations which might result from this proposed sale without a permit.

In accordance with Secretarial Order 2974 (Appendix D) the application by the lessee to the Area Oil and Gas Supervisor, Geological Survey, to grant right of use or easement for construction of fixed structures will be reviewed by the Bureau of Land Management, U.S. Fish and Wildlife Service and Heritage Conservation and Recreation Service.

In accordance with revision to 30 CFR 250.34 (Federal Register, January 27, 1978), the application by the lessee to the Area Oil and Gas Supervisor for approval of exploratory and development plans will be reviewed by the Governor, the Coastal Zone Commission, and the United States Office of Coastal Zone Management.

2. Pipelines: There are four assumed submerged pipelines (Figure III.A.3.1) for the proposed Sale No. 48 tracts. These pipelines would transport the produced oil and gas from the offshore facilities to shore. These pipelines would cross Federal and State waters and come ashore.

An applicant for construction of those pipelines inside Federal waters will require from the Bureau of Land Management (BLM) a right of way (43CFR2883) or from the Geological Survey (GS) a right of use or an easement (30CFR250.18(c)).

A Memorandum of Understanding (MOU) between BLM and GS for the Outer Continental Shelf (OCS) pipelines, August 1, 1974, clarifies the administrative and operational roles of BLM and GS relating to OCS pipelines. According to the MOU, Geological Survey will be responsible for the flow or gathering pipelines; and BLM, all other pipelines. Also, BLM will assume the responsibility for the overall studies of pipeline routes on OCS and designated pipeline corridors.

When BLM or GS receives a pipeline application, an Environmental Assessment (EA) is prepared which is a basic tool to determine the significance of an action's impact upon the environment. If the finding is that the proposal does not represent a major Federal action significantly affecting the quality of the environment then a negative declaration is prepared. If the finding is a significant impact, according to the National Environmental Policy Act, an environmental impact statement (EIS) must be prepared.

An MOU between the Department of Transportation (DOT) and the Department of Interior (DOI), regarding offshore pipelines, May 6, 1976, clarifies the responsibilities between these two Federal agencies. DOT is responsible for the safety regulation of the pipelines extending to shore from the production facilities. DOI is responsible for issuing rights of way, right of use and easement for all pipelines in OCS water. DOI is also responsible for safety regulations of those pipelines upstream of production facilities.

BLM has proposed an intergovernmental planning program for the leasing and transportation of OCS oil and gas. This proposal includes a planning effort to develop a regional transportation management plan for pipelines and surface transportation. This proposal, if approved, will apply to those activities which fall within the purview of BLM and will consider the system approach to the transportation planning.

An application for those pipelines inside State waters to shore would require a right of way from either the State Lands Commission or local government depending on who is the lessor, permit from the Regional Coastal Zone Commission, and a building permit from the local government. The State lead agency, under the California Environmental Quality Act, must determine whether the application may result in a significant effect on the human environment and consequently require the preparation of an Environmental Impact Report (EIR).

A pipeline construction permit will be required from the Corps of Engineers. Permits for the pipeline lay barges will be required as follows: Oil discharge from the Environmental Protection Agency, and aids to navigation from the Coast Guard.

Special Stipulation No. 6 (IV.B) concerns transportation of oil and gas by pipelines and surface vessels from the proposed Sale No. 48 tracts. In selecting the pipeline route, consideration will be given to any recommendation of the intergovernmental planning program for the management of transportation. Where feasible, all pipelines shall be buried for protection against the environment as determined on a case-by-case basis. Except in the case of emergency, crude oil to be transported by pipeline will not be transported by surface vessel.

3. Onshore Facilities: The only new onshore facilities projected for this proposed sale are four onshore operations bases, each requiring 6 hectares (15 acres) of land. Two would most probably be located along the mainland Santa Barbara Channel coast and two in the San Pedro-Long Beach area. The disruptive impact on the environment of facility location would be mitigated by local land use plans, State and Federal regulations, policies, and controls. State and local coastal plans, or Port Master Plans, would designate appropriate locations for these facilities that would meet appropriate standards. Section III.E, Impact on Regional Land Use, discusses the impact of onshore facilities on land use plans.

4. Oil Spill Containment and Cleanup: Whenever oil and gas exploration, development and transportation activities take place, there is a possibility that an accident can occur which will result in an oil spill. To mitigate this source of affecting local resources, the oil companies have formed a number of local oil spill cooperatives as discussed in Sections II.H.5 and III.A.4.b. In addition, the Federal, State and local governments have also formed special task groups to deal with potential oil spills as discussed in the same sections.

As a site specific requirement for each and every drilling operation, the U.S. Geological Survey issued "OCS Order No. 7" on June 1, 1971 (Reproduced in Appendix B) which, in the case of an oil spill on any Federal OCS tract, specifies: a) how it shall be reported, b) that the lessee shall be responsible for all costs associated with control and cleanup, c) documentation requirements, and d) standby pollution control equipment shall be maintained at each operation or shall be immediately available to each operator at an onshore location and shall include containment booms, skimming apparatus and chemical dispersants. In addition, the U.S. Geological Survey issued "Notice to Lessees and Operators of Federal Oil and Gas Leases in the Outer Continental Shelf, Pacific Area" (NTL 77-1) on March 1, 1977 (Reproduced in Appendix C) which specifies that as a part of the four copies of the exploratory drilling plan that shall be filed with the Oil and Gas Supervisor for approval, shall be included an Oil Spill Contingency Plan conforming with OCS Order No. 7 and also defines the minimum requirements for this plan.

Also, on August 16, 1971, a "Memorandum of Understanding Between the Departments of the Interior and Transportation Concerning Respective Responsibilities Under the National Oil and Hazardous Substances Pollution Contingency Plan" (Reproduced in Appendix H) was issued. This Memorandum of Understanding basically gives the U.S. Geological Survey the exclusive authority to direct measures to abate the source of pollution and, if necessary, to stop the pollution control measures by the U.S. Coast Guard within a 500-meter radius of the source of pollution if it will facilitate measures to abate the source of pollution.

As can be seen in Figures III.A.4.b.iii-1 and 2, that, combined with the pollution control equipment that is required at each site, a substantial amount of oil spill containment and recovery equipment can be placed between any resource and the source of a spill in case of an accident prior to the oil reaching the resource. Additional measures will be considered on a case-by-case basis.

Title III Of the OCS Lands Act Amendments has established an Offshore Oil Spill Pollution Fund. Section 302 (a) established, in the Treasury of the United States, an Offshore Oil Pollution Compensation Fund in an amount not to exceed \$200,000,000. The monies for the fund are generated by the imposition of a 3 cent per barrel fee on oil obtained from the OCS by the operator at the time of production. The fund will be used to cover claims for economic loss, arising out of, or directly resulting from, oil pollution (Section 303). Losses covered by the fund include: cost of removing oil; damages to, or injury of, real or personal property or natural resources; or loss of tax revenue for 1 year.

Title IV of the OCS Lands Act Amendments has established a Fisherman's Contingency Fund of \$1,000,000 in the United States Treasury.

The Fund provides reasonable compensation for damages to, or loss of, fishing gear and any resulting economic loss to commercial fishermen due to OCS oil and gas activities. The fund is maintained by levying a fee on oil and gas operators. (See also 30 CFR 250.43). Section 407 of Title VI requires the conduction of a two-year survey of obstructions on the OCS to identify potential hazards to commercial fishing or fishing gear.

D. Other Mitigating Measures

1. Measures Related to Military Operations: As discussed in Section II.G.1.c, the entire Southern California Bight is used by the military for one purpose or another. There are several areas that pose a potential hazard that cannot be completely eliminated by planning alone. To mitigate this potential hazard, Stipulation Nos. 1 and 2, as shown in Section IV.B, will be included as part of the Sale No. 48 conditions if the affected tracts are included as part of the sale. Both stipulations apply to the missile activity that periodically takes place from Space and Missile Test Center (SAMTEC) or the Pacific Missile Test Center (PMTTC). Stipulation No. 1 requires that the lessee: a) coordinate and comply with any special instructions from the appropriate military commander when operating any boats or aircraft in the area, b) temporarily suspend operations if required, including the evacuation of personnel or appropriate safe sheltering of any personnel not evacuated, and c) to control any electromagnetic emissions that might prove harmful or interfere with military activities. Subsection (d) of Stipulation No. 1 extends the coordination of operations and the control of electromagnetic emissions requirement to those tracts in the Dana Point-San Diego area because of the nature and intensity of military operations in that area. Stipulation No. 2 provides an indemnity and save harmless clause for the U.S. Government in case of any accidents caused by the activity discussed in Subsections (a), (b) and (c) of Stipulation No. 1.

2. Well Control Training Program: The U.S. Geological Survey has issued an Outer Continental Shelf (OCS) Standard to ensure safety and to prevent pollution of the OCS by gas and oil operation. This Standard (GSS-OCS-TI) will govern the training of certain personnel in drilling operation. In response to the reference to a training paragraph of the proposed National OCS Order No. 2 (Federal Register, August, 1977), the Standard was issued in December, 1977.

The Standard is intended for the development of training courses and includes testing to ensure that a candidate is qualified. Training courses are applicable to the following drilling personnel classifications: rotary helper, derrickman, driller, toolpusher, and operator's representative.

The U.S. Geological Survey is proposing in National Order No. 2 that by December 1, 1979, only those personnel successfully completing the Standard's training will be allowed to perform their duties on the OCS.

Title VI of the OCS Lands Act Amendments, Section 607, requires the Secretary of the Interior to recommend a program to assure that any individual employed on the OCS who operates or supervises the operation of pollution prevention equipment, is properly trained to operate said equipment.

3. Non-Use of Polychlorinated Biphenyl (PCB) Liquids

Polychlorinated biphenyl liquids in the past have been used as a heat exchange fluid to assist in the separation of oil, water and gas. Studies have shown that this material is toxic and could constitute a hazard. The use of PCB's was banned in the Gulf of Mexico by a USGS notice to Lessees and Operators (Number 73-3, dated 2/16/73) effective June 1, 1973. PCB's are not used on any of the existing Federal platforms on the OCS, nor would their use be permitted by the USGS Area Supervisor in the future.

4. Notices to Lessees and Operators; These notices have the same effect or status as OCS Operating Orders and Regulations and are used when expeditious clarifications, corrections or additions to the orders and regulations are necessary. By issuing Notices to Lessees and Operators (NTLs), the extensive amount of time necessary to amend and republish orders and regulations is avoided. The text of Notices to Lessees and Operators which are currently in effect for the Pacific OCS area can be found in Appendix C. These became effective March 1, 1977 and are:

- NTL 77-1 "Applications for Exploratory Operations"
- NTL 77-2 "Minimum Requirements for Shallow Drilling Hazards"
- NTL 77-3 "Minimum Cultural Resource Survey Requirements"
- NTL 77-4 "Minimum Requirements for Biological Surveys"

The purpose of these notices is to keep lessees and operators informed as to what the USGS requires prior to approving proposals to conduct exploratory drilling operations.

NTL 77-1 Applications for Exploratory Operations, OCS California, south of Point Conception. This NTL draws its authority from 30CFR 250 - Oil and Gas and Sulphur Operations in the Outer Continental Shelf - and summarizes the requirements, permits and mitigatory plans and surveys needed to conduct exploratory drilling operations.

Any time proposed operations involve penetration of the ocean floor, a written application is required. If the penetration exceeds 15.25 m (50 feet), then at least a shallow drilling hazards survey is required. For exploratory drilling, a Hazards Survey (77-2) is required. Depending upon circumstances, Cultural Resource (77-3) and Biological (77-4) Surveys may be required. This NTL requires the filing of exploratory drilling plans with the USGS Supervisor with or before the submission of an Application for Permit to Drill. These plans must include: (a) a description of the drilling vessel or platform along with a description of its technical features, (b) proposed well locations, (c) geological structure interpretations, (d) emergency operating and training procedures, and (e) an oil spill contingency plan.

The oil spill contingency plan must discuss the following: (a) procedures and contact persons to notify in the event of a spill, (b) response procedures for various size spills, (c) a list of spill control and recovery equipment, materials and personnel which are available, (d) training and drill procedures, and (e) spill and pollution preventative measures.

When drilling in formations not known to be free of toxic hydrogen sulfide (H₂S) gas, a contingency plan to deal with possible H₂S emergencies must be submitted.

The NTL refers to Critical Operations and Curtailment Plans required in OCS Order No. 2. This identifies certain operations performed in drilling which are more critical than others with respect to possible accidents. It requires a plan identifying which of these hazardous operations are expected on the lease and a list circumstances which complicate these operations, consequently requiring curtailment of the activities.

The NTL provides notification that an Application for Permit to Drill (APD) is required before commencing drilling under an approved exploratory drilling plan. The APD must discuss safety-related features like blowout preventers, well casing and cementing plans; drilling mud type and quantities, and well evaluation tests planned, like mud logging, drill cuttings, side-wall and core sampling. Plans are required for abandonment procedures and ocean floor cleanup. Well testing, completion or abandonment must be specifically approved by the District Engineer, in addition to the drilling authorized by the APD. A list of agencies issuing permits relating to OCS operations or having jurisdictional requirements is included in the NTL.

In general, this NTL is to inform operators of permits and information needed on leases and to maintain step-by-step monitoring by USGS of operational procedures which may hazard personnel or the environment.

NTL 77-2 Minimum Requirements for Shallow Drilling Hazard Survey, OCS Exploratory Drilling, Pacific Area. This NTL is authorized under 30CFR 250.34(a), Exploratory Drilling Plan. It requires that several types of remote sensing equipment be run over the proposed operational area on a grid 305 m (1,000 feet) square. The data are then evaluated by the applicant or their consultants for potentially hazardous situations. The USGS also evaluates the data.

High resolution data are required to determine characteristics of the ocean floor and deeper layers, to 305 m (1,000 feet) minimum. These data are obtained by sparkers and subbottom profilers. For penetration deeper than 305 m, seismic common depth point (CDP) data are required, which can correlate with the shallow data as well as identify conditions along the full extent of the proposed well bore. These data provide clues to deep and shallow faults, possible high pressure gas zones and zones of sediment instability.

Side scan sonar is required at 100-percent coverage. This gives information about ocean bottom relief and sediment character, possible faults intersecting the ocean floor, areas of slumping sediments, objects on the bottom and, sometimes, escaping gas.

A water depth recorder is required. The data it produces is used to make bathymetric charts which indicate bottom slopes, areas of sediment instability and areas of uneven terrain.

The types of hazards to be identified, bottom samples required to evaluate jack-up rig safety and navigation accuracy for surveys are iterated. The NTL also provides for attainment of additional information where necessary, utilizing underwater television and photography, hydrocarbon sniffer surveys, bottom sampling and divers. A geophysicist is required to be present during all survey activities, to evaluate the data and to sign the required report.

The report is required to include maps giving locational data, survey track lines and bathymetry. Remote sensing data, structural cross-sections, and interpretations of the area near or at the proposed drill site(s) must be provided. Data from additional surveys is to be provided when its collection has been mandated. An assessment of the potential for shallow drilling hazards, including a map, is required.

The function of this NTL is to gather and analyze data which will identify situations like high pressure gas zones, faulted zones and submarine slide areas which could cause the loss of well control, a drilling rig and/or human life if not avoided or prepared for ahead of time.

The apparent weakness in the NTL is that it does not specify any equipment operating parameters, minimum record scales or data quality, thus depending on the applicant's ability to provide adequate quality data. It also fails to provide a means of identifying possible unexploded ordnance found on the sea floor after being intentionally dumped, jettisoned in emergencies or resulting from military exercises.

NTL 77-3 Minimum Cultural Survey Requirements OCS Exploratory Drilling. This NTL derives its authority from Executive Order 11593 and other legislation. Its purpose is to require the use of remote sensing survey data to identify possible or actual cultural resource sites on areas affected by lease activities and, thereby, mitigate adverse effects on them. The remote sensing gear required is the magnetometer (sometimes), dual side scan sonar, subbottom profiler and water depth recorder.

The data are required to be evaluated by a geophysicist and only under special circumstances, by a qualified marine archeologist. If the surveys indicate the presence of sites of potential significance, the NTL requires that they be protected by (a) altering operational procedures, (b) avoidance of the sites, or (c) performing additional surveys to define the site and/or present an appraisal by a qualified marine archeologist defining the site(s).

A report is required and must be signed by the survey geophysicist. A marine archeologists' signature is required only as stipulated under special circumstances in the NTL. The report must include maps showing locational data, survey track lines, bathymetry and anomaly locations.

Side scan sonar, magnetometry and subbottom profile data with an interpretation of the area near the drill site is required. Any additional survey data required, like photo, television, diver observation, etc., should be discussed in a general narrative. Finally, an "assessment as to the possible existence of a cultural resource" must be made.

NTL 77-4. Minimum Requirements for Biological Surveys, OCS Exploratory Drilling. The purpose of this NTL is to reduce or avoid damage to significant biological communities which may exist in some lease operational areas. It amplifies provisions in stipulations of Sale No. 35 leases and a similar stipulation of proposed Sale No. 48. The current NTL is due to be replaced by a new one, the provisions of which have been agreed to by representatives of BLM, USGS, USF&WS and NPS. The new NTL is discussed herein.

The NTL draft requires that the survey document, the species composition and population densities of benthic and pelagic macroorganisms, including fisheries, seabirds and marine mammals. The emphasis is on the benthic environment, however.

A professionally qualified marine biologist, familiar with local flora and fauna is required to sign the report and act as principal investigator.

Survey plans are developed, using remote sensing data to determine the extent of hard and soft bottom areas. After investigative procedures are developed which are suitable for the area, the plan must be approved by the Supervisor. As submitted, it must include the principal investigator's qualifications, maps showing the extent of the proposed lease operation and commencement date of the survey.

The pattern is a grid consisting of parallel transect lines 100 m (328 feet) apart with perpendicular lines spaced at 300 m (984 feet) for hard bottoms. For soft bottoms, the grid will be 200 m (656 feet) by 300 m.

Hard bottom sampling consists of continuous visual coverage using movie or video tape transects with 35mm color still photography supplementing the video. The system must provide the ability to make species identification of organisms a minimum of 5 cm (1.97 inches) in length or diameter. The biologists must provide written or recorded narratives with the photographic surveys.

On soft bottoms, visual systems are also used, taking shots often enough to obtain adequate bottom coverage. The same resolution is required as for hard bottoms.

Additional surveys consisting of box core samples may be required and procedures must be compatible with BLM's baseline studies methodology.

Specimens must be analyzed for wet weight biomass, number of major species, and number of individuals.

Where the hydrocoral *Allopora californica* exists, the survey must document its distribution, abundance and approximate sizes of colonies.

A report and maps are required. The maps must show location, photo tracks, bathymetry and any additional data depicting bottom topography and biological conditions. The report must discuss bottom sample results, survey instrumentation and procedures, sea state, weather and bottom topography. A discussion of the percent coverage of faunal and floral species and their densities at each station must be included. Existing fisheries, seabirds, and marine mammals are to be assessed. A summary of findings including an assessment of the potential for biological impact from the proposed operation and mitigatory methods is required.

5. Waiver of OCS Orders: A departure (waiver) from OCS orders or other rules of the USGS Supervisor may be granted under 30 CFR, 250.12(b) when such a departure is determined to be necessary for one of the following reasons:

- (a) the proper control of a well,
- (b) conservation of natural resources,
- (c) protection of aquatic life,
- (d) protection of human health and safety,
- (e) protection of property, or
- (f) protection of the environment.

Waivers are technically based decisions and are granted in situations only where expert judgment determines that more efficient or safer operations would result from operations under the waiver. Under regulation, the USGS Area Supervisor may approve minor departures from the requirements of the OCS orders but a request for a major departure will have to be approved by the Chief of the Conservation Division in Reston, Virginia. In practice, normally all requests for waivers are directed to Reston, Virginia for approval.

6. **Geophysical Information:** Geophysical surveying offshore Southern California is a supplementary method of locating likely positions of oil and gas resources and of securing information about hidden structural conditions, both of which are critical to the safe and efficient development of potential reservoirs. Surveys help visualization and understanding of geologic conditions and avoidance of the "grass-hopper" approach to exploration. Geophysical measurements related to offshore oil and gas exploration are concerned with detecting changes in geologic conditions that may be directly or indirectly related to: 1) analysis of economic, or speculative production zones; 2) definition of potentially hazardous areas; and 3) delineation of basin geometry.

Of particular interest here, is the employment of geophysical survey data to mitigate or avoid potential impacts from geologic phenomena upon proposed development. Among the several geophysical systems in use offshore Southern California are seismic profiling (reflection and refraction), magnetic surveying, and gravitational surveying.

Seismic Profiling. By measuring the velocity of shock or seismic waves through various rock formations, seismic surveys provide information about the thickness and depth of various layers of rock and the probable location of folds and faults. Information about the deeper layers is used primarily for evaluating the petroleum resource and resource potential; shallow-layer information identifies potentially hazardous conditions such as surface faulting, potential slide areas, or shallow gas pockets. This type of information is valuable in the choice and evaluation of drilling platform locations.

Magnetic Surveying. The inclination of earth's magnetic field varies about 90 degrees between the equator and the poles, and rocks possessing ferromagnetic susceptibility become magnetized in the direction of the earth's field - some rocks exhibit permanent or remnant magnetization independent of the earth's present field. The presence of such rocks distorts the normal magnetic field in their vicinity and a map or profile shows how magnetic intensities vary over the area surveyed. This profile may be used to interpret the gross geologic features and lithology of the earth's crust (i.e., shear zones, intrusive rock masses, areas of thick volcanic sequences, etc.).

Gravitational (Gravity) Surveys. Gravity surveys are concerned with changes in geological conditions so that changes in gravity, rather than gravity itself, are of primary interest. Gravity anomalies reflect variations in density of underlying rocks which may be due to compaction, porosity, saturation, texture, composition, weathering, age, fracturing, or depth of burial. It may be used for estimating the location of some mineral deposits and geologic structures such as anticlines, buried ridges, etc.

On-Structure Exploratory Drilling. The Secretary of the Interior has announced a new policy to allow operators to drill wells prior to lease sales. The USGS is currently considering regulations for that purpose.

Geophysical surveys, used with other available geologic information derived from exploration activities and previous or existing operations, provide the primary basis by which potential geologic hazards may be identified. Once hazardous conditions are identified, drilling and production programs are modified to assure safety of operations.

7. Conservation Practices: Conservation, or efficient production at the highest rate without waste, can be attained by a combination of several related methods currently employed in oil and gas field development. The aim of the several conservation measures is to maintain the maximum reservoir energy - natural energy that is present in the reservoir available to move oil and gas into wells. Once reservoir energy is depleted, substantial quantities of oil may become isolated and, therefore, non-recoverable. Well spacing, reinjection of produced water, production (rate) control, and unitization are some of the most commonly-used measures to effect conservation.

Well Spacing. The practice of spacing wells has become a major conservation 'tool' for efficient production. Well spacing - the distance between the intersections of wells on a producing horizon - is dependent upon reservoir characteristics (energy, porosity and permeability of the producing horizons, etc.) and the "fluid" characteristics of the oil and gas. Too few wells, or improper well spacing, may lead to channeling of the flow. Once a channeling pattern has formed, it is difficult to change, and it may isolate substantial quantities of oil in patches or islands within the reservoir rock where permeability is lower. Section 25 of the OCS Lands Act Amendments gives DOI the authority to approve or revise development plans to attain greater recovery of oil and gas.

Reinjection of Produced Water. Almost all oil and gas reservoirs contain some percentage of water. As soon as a well taps a pool and fluids are withdrawn, the pressure gradient around the fluid draw-point is decreased. One means of efficient production is to reinject the water produced from the well at an alternate location (i.e., at the periphery of the pool) to maintain the reservoir pressure gradient for driving the oil and gas toward the well.

Production (Rate) Control. Production from some reservoirs at excessive rates results in the wasteful dissipation of reservoir energy and the reduction of the total amount of oil and gas that may ultimately be recovered. Section 25 of the OCS Lands Act Amendments gives DOI authority to approve production rates.

To conserve both the natural resource, and the reservoir energy, the U.S. Geological Survey reviews the lessee's proposed rate of production, and ultimately approves a maximum rate, to assure that the petroleum is not being produced so quickly as to reduce recoverable petroleum.

Unitization. Frequently a single reservoir may underlie leases belonging to two or more separate owners. In such cases a strong motivation exists for each owner to produce as much oil and gas as possible from

his own lease to prevent drainage of oil and gas to adjoining leases. In the past, this has led to needless and costly drilling and large-scale waste of oil and gas.

One especially effective conservation measure to curb such wasteful practices is unitization. This is the practice of pooling all interest, ownership, and control in a prospective or producing oil and gas field, or part of a field, through a "unit agreement" that provides for a single operator or company to develop and operate several leases as though they were one. When it can be shown to be in the best interest of conservation, oil and gas leases can be unitized. Unit agreements may be initiated by lessees or by the Director, Geological Survey, when he deems it necessary. Unitization is usually required for the effective use of most secondary and tertiary recovery operations where the petroleum reservoir involves more than one lease tract. Ownership of production is in proportion to the percentage interest ascribed to each tract, and each lessee shares in production and expenses of the unit.

The Oil and Gas Supervisor, in the interest of conservation, is authorized to approve well locations, well spacing programs, and the location of drilling platforms, confirm the geologic and reservoir characteristics of the field, the number of wells that can be economically drilled, the protection of correlative rights, and the minimizing of unreasonable interference with other uses of the Outer Continental Shelf. The Supervisor draws his authority from Title 30, Part 250 of the Code of Federal Regulations and the OCS Orders.

E. Mitigating Measures Not Currently in Effect

1. Regulation of OCS Air Emissions: The Outer Continental Shelf Lands Act Amendments of 1978 provide that the Secretary of the Interior shall prescribe regulations with provisions "for compliance with the national ambient air quality standards pursuant to the Clean Air Act (42 U.S.C. 7401 et. seq.), to the extent that activities authorized under this Act significantly affect the air quality of any State." (Section 5(a)(8), 43 U.S.C.1334). The Amendments indicate that Congress intended for the Secretary of the Interior to establish a regulatory scheme to insure that attainment or maintenance of the ambient air quality standards of a State is not jeopardized by air emissions for operations occurring on the OCS. The Secretary is committed to the prompt promulgation of regulations with maximum opportunity for public input. An Advance Notice of Proposed Rulemaking was published in the Federal Register in December 1978. This notice is issued to invite public participation in the identification and selection of a course of action for the Department to take to regulate air emissions on the OCS that may significantly affect the air quality of any State. The comment period for the Advance Notice will close on January 31, 1979.

It is anticipated that proposed regulations will be published in March 1979 and final regulations in June, 1979. Thus, the strategy which the Department intends to adopt concerning the regulation of OCS air emissions will be before the public well before the anticipated date of the proposed Lease Sale No. 48.

In addition to DOI's efforts to regulate air emissions from OCS operations which may significantly affect onshore areas, the Environmental Protection Agency has recently determined that it has authority to apply certain provisions of the Clean Air Act to facilities located on the OCS. EPA's assertion of jurisdiction was made before the 1978 Amendments to the OCS Lands Act and is based on statutory language predating provisions of the Amendments directing the Secretary of the Interior to regulate OCS air emissions. EPA's position is that the Clean Air Act and the State Implementation Plans promulgated thereunder apply to all activities on the OCS that can have an adverse effect on air quality over the United States.

EPA's assertion of jurisdiction over OCS operations, which arose as a result of Exxon Corporation's proposed installation of an Offshore Storage and Treatment (OS&T) facility on the OCS off the coast of Santa Barbara County, California, is being challenged by Exxon and is presently before the United States Court of Appeals for the Ninth Circuit. (See Appendix K)

The State of California has also attempted to regulate air emissions from OCS operations. In early 1978, the State informed Exxon that the OS&T proposed for the Hondo Field could not be constructed until various State air quality permits were obtained by the lessees. The lessees refused to apply for the permits, claiming that the OCS was outside the State's jurisdiction. The State filed suit against Exxon and the Department of the Interior to block the OS&T project. The Federal District Court for the Central District of California dismissed the State's suit on the grounds that the State had no authority to regulate beyond the 3-mile boundary separating State and Federal waters.

In summary, then the regulatory situation for air emissions on the OCS is as follows:

- (1) The Department of the Interior has a statutory mandate to regulate OCS air emissions that significantly affect onshore areas and is in the process of promulgating regulations to accomplish such regulation.
- (2) EPA has claimed jurisdiction to apply the Clean Air Act to operations on the OCS that adversely affect onshore areas and is presently involved in litigation in which that jurisdictional claim has been challenged.
- (3) The Federal district court has held that States cannot impose their State regulatory scheme for air quality control on OCS lessees.

Regulation Under Future Interior Rules. The Department of the Interior's Advance Notice of Proposed Rulemaking sets forth a general description of the type of regulatory provisions which are being considered by the agency for inclusion in the proposed regulations to be published in March, 1979. The Advance Notice (see Section IV.E.4) explains that the

Department intends to ensure that the attainment or maintenance of of ambient air quality standards of an area is not jeopardized by air emissions from operations occurring on the OCS. It requests comments on whether more stringent State ambient air quality standards should be applied, whether air which is cleaner than the national standard should be protected, and whether an offset requirement should be incorporated into the department's regulatory scheme. Final decisions on the scope and content of the regulations will be made only after all comments and suggestions are considered.

Regulation Under EPA's Scheme. Under EPA's regulatory scheme, the new source review and prevention of significant deterioration provisions of the California State Implementation Plan would be applied to OCS operations which would have an adverse impact upon onshore air quality. Thus, lessees whose operations qualify, under EPA definitions, as "major emitting sources" or "major modification" would be required to go through the new source review permit process. Likewise EPA's prevention of significant deterioration regulations would apply to OCS Facilities whose air emissions would impact attainment areas. Finally, EPA would require "offset" commitments in certain cases from lessees.

Because of the pending litigation, it is not possible to describe the precise roles that EPA and DOI will play in the regulations of air emissions from OCS Operations. No matter what the outcome, however, it is clear that: 1) the operations will be regulated in such a way that a State's ability to attain and maintain the national ambient air quality standards will not be impaired by OCS activities which would significantly affect the air quality of any State; 2) air quality regulations will be imposed only where the emissions will affect on-shore areas; and 3) EPA and Interior will work closely together toward a coherent policy on the nation's oil and gas needs and environmental imperatives (see letter from Administrator Costle to Secretary Andrus, Appendix K).

Application to Activities Onshore and in State Water

The onshore components of OCS oil and gas production activities are subject to regulation by the Environmental Protection Agency, the California Air Resources Board and the responsible local Air Pollution Control Agencies. Included in this category are treatment and separation facilities, storage tanks and loading of tankers and barges at onshore marine terminals. In this latter case the California Air Resources Board has ruled that the carriers shall be considered to be parts of the stationary sources.

Future Control Requirements

It is clear that regardless of the outcome of the suit, all new construction of fixed structures resulting from Lease Sale 48 will be regulated to the extent that emissions from such structures significantly affect the air quality of any state. At this point in time NSPS have been established for petroleum storage tanks but not for marine terminals or oil and gas production and processing facilities. It is anticipated that EPA will establish NSPS for these remaining activities sometime in 1979, and it is also possible for state and local agencies to enact regulations in advance of the federal NSPS if they choose to do so. Regardless of the exact sequence of events, applicable standards will probably be in effect before any activity has started on Sale No. 48 tracts.

It is difficult to anticipate precisely what the situation will be with respect to tanker and barge loading. This activity will go on with or without Sale 48. The proposed lease sale will merely increase its frequency, but there will not be terminals, and carriers that are associated specifically with Sale 48 and not with other activities. It seems likely that best available control technology will be required by local and state agencies for all tanker loading and unloading operations because such controls will be a necessary part of the State Implementation Plan to achieve the oxidant air quality standard. Although appropriate control technology is still under development, it seems likely that appropriate controls will be available by the time Sale 48 oil is in production.

The California Air Resources Board is now attempting to draft control legislation for nitrogen oxides emissions from large stationary sources such as power plants and refineries. By the time Sale 48 construction plans are developed the experience in their effort is expected to provide a basis for possible controls to reduce nitrogen oxides from new onshore oil and gas production facilities in the event that the NSPS do not cover nitrogen oxides.

2. Administrative Actions to Mitigate Adverse Impacts

Certain administrative actions could be taken to mitigate some of the adverse air quality impacts associated with Sale No. 48. These administrative actions include proposed air quality regulations currently being developed which will apply to Sale No. 48 leases which will ensure specific actions by the leasee which result in the mitigation of adverse air quality impacts. An Advance Notice of Proposed Air Quality Rulemaking is presented in Appendix K.

Measures for mitigating the adverse impacts of the proposed OCS projects on air quality can be categorized as follows:

- (1) Measures for reducing pollutant emissions at the source.
- (2) Measures for changing the spatial or temporal relationships of individual sources to minimize the aggregate impact.
- (3) Measures for reducing the populations exposed to the impact, for example, relocations of proposed project elements.

Most realistic, committed, and enforceable measures for the mitigation of adverse air quality impacts fall into the first of the above categories. They reduce emissions at the source. Such measures are the main subject of the discussion which follows. The remaining two categories will be discussed briefly.

Best Available Control Technology (BACT) has not been defined for offshore facilities. This section presents the BACT associated with onshore facilities with a discussion on its applicability to offshore facilities.

a. Reduction of Emissions at the Source

Accidents. Accidents produce larger air quality impacts than any normal oil production activity. It is of extreme importance to minimize oil spills and blowouts to the maximum extent possible because there is very little corrective action that can be taken to reduce the impact on air quality after the accident has occurred. The major hydrocarbon emissions (75 percent) occur within the first two hours. Accident prevention is discussed in connection with the impact on water quality and will not be discussed here. Even though the impact of accidents on air quality is large, the impact on water quality is still larger.

Fugitive Hydrocarbon Losses from Offshore Activities:

The first thing that must be known is what type of processes and equipment can be expected to be found at the platform. Processes will include pumping oil and gas out of the ground, separating the two and sending it ashore for further processing. Any water used on the platform for washing or cooling may have to be treated to remove oil contamination prior to discharge. Also, to provide for safety during upsets, a flare should be present. Equipment one can expect to find on the plant are pumps, compressors, valves, flanges, blinds, sampling points, horizontal tanks (high pressure bullets probably) for liquid-gas and oil-water separation, and a flare. There are two keys to the control of fugitive emissions-design and maintenance.

Several criteria can be incorporated into a platform design which can reduce fugitive emissions.

- (1) Volume throughputs of platform pumps and compressors should be high enough so that centrifugal fluid-transport systems can be used. This is desirable because a centrifugal unit can be controlled by a mechanical seal whereas a reciprocating shaft can only be controlled by packing seals. Data have been developed to show that packed seals emit 50 percent more hydrocarbons than mechanical seals (Rosebrook, 1977).

When considering the types of mechanical seals to use on compressors, there are two recommended types: the labyrinth seal for gas service, and the oil-film seal for liquid service.

Labyrinth seal; This seal consists of a number of restrictions and openings through which the escaping gas must flow. The labyrinth seal is usually vented at some midpoint and bled back to a lower pressure stage or to the compressor suction.

Oil film seal: An oil film seal is a successful modification of the mechanical seal. It is constructed like a mechanical seal but the wearing faces are held apart while the machine is running. The reason there is no wear is that the oil pumped between sealing faces does the actual sealing. One estimate of emissions from this type of compressor and seal is 50 scfm/compressor through the drain pipe.

If it is necessary to use reciprocating pumps or compressors, packing will have to be used. Newer forms of packing termed "vent packing" consists of a relatively firm packing housing which encases the shaft and can be connected to a vapor blowdown and collection system with the final destination being the flare. This leads into the second major design criteria change, increased use of the flare.

- (2) Wherever possible, process vents can be routed to the flare. Due to the physical closeness of all equipment on a platform, the logistics of employing such a system should not be difficult. This practice would tie in pressure relief valves, compressors, covered oil/water separators, and all other feasible potential leak points.

The flare can be sized large enough to handle upset conditions and be equipped with a smokeless tip. The tip functions by injecting steam into the gas flame to improve combustion and reduce visible emissions. The most desirable type uses automatic steam injection with manual override.

- (3) The third major design condition which can be employed is the generous use of in-line spares. In the operation of a production facility, it is very important that processes operate as much of the time as possible. In order to minimize down-time caused by equipment malfunctions, the major streams should have spares. The lack of a spare on an important streamline could cause operation to continue during a leakage condition resulting in more hydrocarbon emissions than would result if this pump had an in-line spare. Existence of this spare would allow switching of the product line with minimal disturbance to the process operations while the normal pump can be taken off-line making a leaking seal readily accessible for repair or replacement.
- (4) Several minor design aspects can also be employed. It occasionally becomes necessary to utilize blinds. A blind is a flat solid piece of steel which can be inserted in a flange to form a solid seal in a line. The presence of a blind in a line at times of repair eliminates the danger of an injury, contamination, or spillage due to an inadvertent opening of a valve.

Normal blind changing consists of disconnecting bolts, splitting with a flange chisel and inserting the blind. This process uses manpower and can result in needless hydrocarbon emissions. BACT would be a permanently installed quick-change blind such as the Hamer unit, which can be changed almost instantaneously without loss. This valve has an integral handwheel to release the pressure on a rubber-gasketed double spectacle blind. One side is solid and the other is ring-shaped for use during normal operations. When the pressure is released, the blind is merely slid across to the other position and the pressure reapplied by the hand-wheel. Due to the cost, these blinds are usually restricted to applications which require frequent changes.

Valves can be controlled by the new vent packing, if possible. Relief valves can have bursting discs with maintenance or vent to the flare.

The second major emission reduction procedure is maintenance. This includes both repair and preventive maintenance.

During scheduled turnarounds, the facility has a number of opportunities to reduce fugitive emissions easily and inexpensively: 1) replace seals (mechanical for packing, if possible), 2) replace packing in valves, 3) replace gaskets (for valves and flanges), 4) clean and reseal pressure-relief devices and tie them into a flare system, 5) cover drains, and 6) install more modern equipment.

Routine maintenance can be much less complicated than that performed during a turnaround. Valve leaks can usually be reduced or eliminated simply by tightening the nuts on the packing gland. That valve can then be marked for close inspection during the turnaround. Leaks are easily detected with a hydrocarbon monitor, and, with experience, their magnitude can be estimated quite accurately (Rosebrook, 1977).

Fixed roof storage tanks with no vapor recovery systems were assumed for offshore processing facilities. Installation of some sort of emission control system should be possible. If any vapor recovery system is technologically feasible and applicable to offshore processing facilities, their use may be required.

Offshore Power Generation. The power for drilling and oil processing on offshore platforms was assumed to be supplied by diesel fired internal combustion engines. Table IV.E-1 shows the reduction in

combustion emissions which would result from the substitution of sweet natural gas for diesel as a fuel.

Tanker Operations. Substantial hydrocarbon emissions occur during loading and ballasting of tankers, and much lesser emissions occur during unloading and transit. In the scenarios under consideration, tanker loading occurs as a part of the lightering operation in 1975 and at single buoy moors in 1986. Barges are also loaded at single buoy moors and at port in Ventura in the 1986 scenarios. The entire lightering operation is expected to be phased out by 1986, constituting a mitigation measure for lightering emissions. Loading emissions from tankers and barges at single buoy moors and at Ventura would presumably be reduced substantially by installation of vapor balance recovery systems similar to those used at onshore truck loading facilities. This has not been demonstrated, and is complicated by Coast Guard safety regulations that do not apply onshore and also by the extremely high flow rates that are sometimes used during tanker loading.

Emissions were calculated on the assumption that tankers burn 2.5 percent sulfur fuel at sea and 0.5 percent or 1.0 percent sulfur fuel in port. Tugs and barge pumps were assumed to be powered with diesel fuel (.02 percent sulfur). Emissions of sulfur oxides could be reduced by switching to lower sulfur fuels; however, the fuels burned in port are already assumed to be low sulfur. Additional reductions could be achieved at sea by switching to low sulfur fuel, but the improvement in air quality over populated areas would be very small and might not be justified in view of the severely limited quantities of low sulfur fuel that are available.

Hydrocarbon losses during transport can be minimized by the use of gas blanketing systems utilizing combustion gases passed through a seawater scrubber, in conjunction with pressure-vacuum vents. These systems are now used on a few large tankers and could probably be adapted to the smaller (400,000 bbl) tankers proposed for the 1986 OCS scenarios. Emissions were computed under the assumption that these systems would not be used, so further reductions are possible. A non-self-propelled barge does not have the resources for such a gas blanketing system, but installation of pressure-vacuum vents (without the blanketing system) should aid in reducing transit losses. Transit losses from tankers and barges are small compared to loading losses and fuel combustion emissions, so the overall change in air quality resulting from control of these emissions would be very small.

Table IV.E-1

NATURAL GAS AND DIESEL EMISSION RATES

Contaminant	Natural Gas Emission Rate (lbs/106 BTU*	Diesel Emission Rate (lb/106 BTU**
Particulate	0.01	0.24
SO ₂	Neg.	0.22
NO ₂	0.39	3.35
HC (total)	0.04	0.27
CO	0.11	0.73

*AP-42, Table 3.3.1-2 Composite Emission Factors for 1971 Population of Electric Utility Turbines. Assumed natural gas to have heat content of 1050 BTU/CF.

**AP-42, Table 3.3.3-1 Emission Factors for Gasoline and Diesel-Powered Industrial Equipment. Assumed diesel to have heat content of 140,000 BTU/gal.

b. Changes in Scheduling of Operations

Cargo tank purging. Occasionally the cargo tanks on a tanker may be purged by sweeping them out with air so that it is possible to enter the hold to accomplish repair work. This process results in very large emissions of hydrocarbons. Purging was not considered in the modeling studies described in this report because it occurs infrequently and is not usually done in port.

Ballasting. When ballast water is drawn into tanks that have previously held crude oil, large amounts of hydrocarbons are emitted into the atmosphere. These emissions can be prevented in two ways: 1) by using segregated ballast tanks which are never used for crude oil, and 2) without segregated ballast tanks by keeping ballasting to an absolute minimum when in port. Segregated ballast tanks are in use now, on larger tankers, so no technological developments are required

c. Reducing the Population-at-Risk: In general, onshore activities have more impact on the population than the associated activities conducted offshore. The additional emissions associated with transporting personnel and supplies to offshore locations are negligible compared to the emissions from the production and processing operations themselves. Therefore, the farther away from populated areas the offshore production and processing facilities are, the less will be the impact of impaired air quality on the population.

3. Mitigation of Specific Air Impacts

a. Santa Barbara and Ventura Counties

i. Oxidant Air Quality: The impact is caused primarily from hydrocarbon emissions associated with onshore gas processing and to a lesser extent from hydrocarbons from tanker loading at a single buoy moor in the channel. Onshore emissions must be offset by reduction of emissions from existing sources since the onshore processing facility must comply with applicable new source review rules.

It is expected that vapor recovery systems may be required for tanker loading by the time Sale No. 48 oil is loaded. If EPA is given OCS regulatory power, then emission offsets may be required for tanker loading. The method that DOI will use to mitigate has not been resolved at this time.

ii. Nitrogen Dioxide Air Quality: This impact is associated with the onshore processing facilities which are subject to control by local agencies. It is anticipated that the California Air Resources Board will have developed model control legislation by the time Sale 48 construction permits are applied for. The impact will also be mitigated by conducting on-shore processing at several different locations as was assumed in the scenario modeled. These measures are discussed in Section III.F as Alternative Development Scenarios.

iii. Hydrogen Sulfide Air Quality: This impact is associated with the onshore processing facilities which are subject to control by local agencies. Technology for removal of hydrogen sulfide is well developed and can be incorporated into the design of the new facility at the time that specific plans are prepared.

iv. Sulfur Dioxide Air Quality

The increased tankering associated with Sale 48 will cause increased emissions of sulfur oxides which may result in a significant deterioration in air quality. The magnitude of these emissions is directly proportional to the percent sulfur in the oil burned to power the tankers. Control is accomplished by reducing the sulfur in the fuel oil. As discussed earlier, there is no tankering associated uniquely with Sale 48, but rather an increase in overall tankering activities. It seems that any regulation of sulfur content of fuel oil would apply to all tankers without regard for the source of the oil they were carrying.

b. Los Angeles and Orange Counties

i. Oxidant Air Quality: The impact is covered almost entirely by oil and gas processing conducted onshore in the Los Angeles Harbor area. These facilities would be subject to control by local agencies and would come under the provisions of new source review and emissions offsets.

ii. Nitrogen Dioxide Air Quality: This impact is associated with onshore processing facilities that are subject to local agency control. The discussion above for Santa Barbara and Ventura Counties also applies here.

iii. Sulfur Dioxide Air Quality

The increased tankering associated with Sale 48 will cause increased emissions of sulfur oxides which may result in a significant deterioration in air quality. The magnitude of these emissions is directly proportional to the percent sulfur in the oil burned to power the tankers. Control is accomplished by reducing the sulfur in the fuel oil. As discussed earlier, there is no tankering associated uniquely with Sale 48, but rather an increase in overall tankering activities. It seems that any regulation of sulfur content of fuel oil would apply to all tankers without regard for the source of the oil they were carrying.

c. San Diego County

i. Oxidant Air Quality: The impact is caused primarily from hydrocarbon emissions associated tanker loading at the single buoy moor. It is expected that vapor recovery systems may be required for tanker loading by the time Sale No. 48 oil is loaded. If EPA is given OCS regulatory power, then emission offsets may be required for tanker loading. The method that DOI will use to mitigate has not been resolved at this time.

ii. Sulfur Dioxide Air Quality

The increased tankering associated with Sale 48 will cause increased emissions of sulfur oxides which may result in a significant deterioration in air quality. The magnitude of these emissions is directly proportional to the percent sulfur in the oil burned to power the tankers. Control is accomplished by reducing the sulfur in the fuel oil. As discussed earlier, there is no tankering associated uniquely with Sale 48, but rather an increase in overall tankering activities. It seems that any regulation of sulfur content of fuel oil would apply to all tankers without regard for the source of the oil they were carrying.

d. Channel Islands National Monument

This area may be classified as a Class I area under the provisions of The Clean Air Act with the resulting requirement that its air quality, which is presently assumed to be cleaner than the standard, be prevented from significantly deteriorating. At present these requirements apply only to TSP and SO₂, but in the near future they will be extended to NO₂ and O₃. The increased tankering associated with Sale 48 will cause increased emissions of sulfur oxides which may result in a significant deterioration in air quality. The magnitude of these emissions is directly proportional to the percent sulfur in the oil burned to power the tankers. Control is accomplished by reducing the sulfur in the fuel oil. As discussed earlier, there is no tankering associated uniquely with Sale 48, but rather an increase in overall tankering activities. It seems that any regulation of sulfur content of fuel oil would apply to all tankers without regard for the source of the oil they were carrying.

4. Reducing Adverse Platform Visual Impacts

Methods to reduce the negative visual aspects of platforms either exist in some cases, or are plausible in others. These range from hiding all or most of the installation to changing the basic outline of the platform or merely changing the paint tone. Concealment may be achieved by utilizing subsea completions or caissons which either barely extend above the sea surface or do not penetrate the surface. Subsea completions are either sea floor well heads connected by pipelines to a distant platform or to shore-based installations. There are some technical limitations on their use but there are existing installations in the Santa Barbara Channel. Other subsea completions utilize dry capsules around the well head, serviced by personnel arriving in a submersible and gaining access through an airlock. These devices are experimentally operational.

Other proposals have been made to construct concrete caissons which rest on the sea floor, enclosing the well heads and extending to near or above the sea surface. We are not aware of this concept having been tested under actual conditions.

The preceding systems obviously will have the greatest reduction in visual impact by placing all or most of the structural part of the production system out of view under the water. Other systems can reduce negative visual impacts without compromising safety visibility requirements.

A platform protruding above the sea surface is not readily concealed despite the fervent hopes of some and the profound fears of others. Maximum reduction of visibility may be accomplished by using mirrors or sea water sprays judiciously. Mirrors would be placed at strategic points on the structure to alter its shape or apparent size as viewed from certain perspectives. This would dramatically reduce adverse visual impacts without necessarily reducing visibility of the installation for safety purposes. It would not be necessary to cover all sides or all portions of the structure. Two or three sides and portions of the treated side(s) would remain open. Another method by which visibility for safety could be retained is to utilize mirrors in a louvred or venetian blind arrangement which would allow viewing behind the mirrored surface from certain angles. Half-silvered mirrors would permit viewing the structure through the mirrored surface from shorter distances while creating a diffused to non-existent view of it from greater distances.

Another means of reducing visual impacts is to alter the design of the platform itself so that it appears visually interesting and more attractive. Examples of this approach are the oil islands in Long Beach Harbor, in which the derricks have been disguised as buildings and other equipment screened from view.

Some concern has been expressed about the safety aspects of visual contrast reduction techniques. Because of the risk to human life, all other resources and capital investment, safety is and should be, a prime consideration. The goals of visual contrast reduction and safety are not mutually exclusive.

In the case of less intensive techniques such as painting, it is not possible to render offshore structures invisible, or even difficult to see from distances of less than 3 or 4 miles. Platforms are vertical elements in the generally horizontal plane of the sea which makes them readily visible. The size and shape are more important in achieving visual sighting than color or marking, regardless of distance. In any event, the structure cannot be hidden by choice of color or use of pattern painting.

Coast Guard regulations concerning artificial islands and structures on the OCS address lighting and fog horns, but have no paint color or marking requirements other than the requirement at Title 33, CFR Part 146.01-5(b) which requires 12 inch letters giving the name and number designations of the fixed structure. Since it has, in the thirty years of existence of offshore platforms, established no regulation, it appears that the Coast Guard has not considered paint color as an important aid to navigation with respect to platforms.

Between sunset and sunrise, flashing lights are required (33CFR 67.01-5(b)) and fog horns must operate any time the visibility falls below 5 miles (33CFR 67.20-10(a)(2)). This leaves primary sighting by visual means, wherein color might play a role, to daytime and visibilities greater than 5 miles. Most vessels are equipped with and use radar including smaller sport fishing or diving vessels.

With increasing distance, colors become grayed until, depending upon atmospheric conditions and lighting angle, they become indistinguishable. Where large distances are involved, visual contrast reduction depends upon selecting a gray-scale equivalent which will blend with the background tone. For nearby viewing, the key factor is using colors which are compatible and not garish or clashing. Although a little light, the blue used on the jackets of the Santa Barbara Channels' Dos Cuadros field platforms is an example of colors which are reasonably compatible, both in hue and tone, with visual contrast reduction goals. If necessary, nearby visibility can be increased by marking the corners with orange triangles such as those utilized for highway warning or by painting yellow bands on the corner platform legs.

The use of mirror techniques will lower visibility markedly but safety considerations can still be met by the use of movable louvers, mirror orientation, leaving part of the structure exposed and treating only the sides exposed to critical viewing points. In periods of low visibility, the louvers can be opened to allow complete viewing.

The use of subsea structures would make marking of the location imperative in the case of caissons. This could be done effectively without creating adverse visual impacts by using radar reflectors, flashing lamps and fog horns when necessary.

Visual Contrast Reduction Stipulations That Could Be Considered But Are Not Proposed At This Time.

In the approval of exploration and development plans, including the installation of platforms and offshore storage and treatment facilities, the Supervisor shall require the lessee to utilize colors, tones, lusters and patterns which will reduce visual contrast.

In the approval of exploration and development plans, including the installation of platforms and offshore storage and treatment facilities, the Supervisor shall require the lessee to utilize subsea completions or largely submerged enclosed caissons in lieu of platforms when the technology has been determined to be adequately developed.

In the approval of exploration and development plans, including the installation of platforms and offshore storage and treatment facilities, the Supervisor shall require the lessee to utilize any of several techniques which will enhance the visual compatibility of such installations. These include alteration of basic structural outlines, the use of sea water sprays and/or the use of full or half silvered mirrors or mylars to alter structural outlines.

V. UNAVOIDABLE ADVERSE EFFECTS

A. Marine Organisms and Habitat

Unavoidable effects would include the discharges of drill cuttings, drilling muds, and formation waters, tanker operations, resuspension of sediments during the excavation of pipeline trenches, and oil spills.

Several oil and gas operations result in temporary increases in turbidity. These operations include the discharge of drilling fluids and the excavation of pipeline trenches by jetting and dredging. The excavation of pipeline trenches in water depths of less than 60 m (200 feet) by jetting, dredging or possible blasting is an unavoidable consequence of pipeline design. Pipeline laying could continue throughout the entire construction phase of operations or for at least 9 years. Actual corridor excavation will be sporadic throughout this period occupying less than 5 percent of the total working day and limited to areas near the mainland in shallow water of 60 m (250 feet).

The turbidity zone caused by drilling cuttings, although unquantifiable, will be significantly larger than the 30 m (100 feet) diameter pile of cuttings caused by this operation. The drilling operations last approximately 30 days, causing a prolonged turbidity period of 30 to 40 days. Although the impact on the plankton and benthos of the total Bight will be insignificant, localized destruction is unavoidable. When turbidity is generated near the water surface, the depth of penetration of sunlight is diminished. This leads to a decrease in the output of the photosynthetic mechanism of the phytoplankton. The dimensions of the area affected by pipeline burial are small and consist of a plume hundreds of yards in length. The duration of the turbidity in a given location will be several hours. The effect of any decrease in primary production must be considered adverse. The area involved is unquantifiable but very small and any reduction would only occur locally and would not involve the entire population of marine organisms. The impact of turbidity, by itself, will not have an effect on man.

Clogging of respiratory surfaces and filter-feeding mechanisms could reach a severe level in the benthic animals. The result of turbidity will be physiological stress and possible mortality. This impact will be encountered during pipeline jetting operations and will be restricted to the downstream direction of the ocean current. The duration of the impact in a given area along the more continuous path of the pipeline corridor will be no longer than a few hours, but if it occurs in shellfish beds, rocky shores, kelp beds, or similar concentrations of organisms the impact would be considered adverse.

Beneath every platform where wells have been drilled is an expanse of cuttings, released during drilling, which has buried and smothered all non-motile benthic forms below it. If cuttings are different in texture and composition from the surrounding sediment, they will not likely be colonized by the previous forms.

Resuspension of toxic pollutants from within the sediments of certain areas and the resulting death of organisms or possible accumulation of toxicants in the food chain, including animals eaten by man, is another adverse impact. This will be particularly true on the San Pedro Shelf and Los Angeles-Long Beach Harbor. The amount of pesticides and certain heavy metals which will be accumulated in the food chain as the result of this operation alone will be slight. However, these operations and resulting minor food chain accumulations could add to those from other non-oil related operations (agriculture or industrial effluents, dredging in contaminated sediments, etc.,) which cause substantial food chain buildup and affect man who eats higher trophic level fishes which contain pesticides, mercury, carcinogenic agents, etc.

Under present EPA standards promulgated for 1983, the formation waters can be discharged containing 30 ppm of oil. Chronic spills from platforms may also occur. These spills and the discharges of formation waters will result in increases of the hydrocarbon levels, and possibly trace metal concentrations, in the water column and the sediments near platforms. The ecological significance of the accumulation of these substances and the impact on the ecosystem are uncertain, but if they occur, they will be subtle and require a long time period to be noticeable.

Marine plankton present near the core of the plume of formation water, before it is sufficiently diluted by sea water, will suffer stress or mortality from concentrations in the plume. This adverse effect will be immeasurably small at the population level.

Exposure of biota to harmful or toxic materials, released into the marine environment or coastal wetlands, such as from accidental spills of crude oil, fuel and solvents will bring about an unquantifiable adverse effect. Statistically, oil spills are inevitable, and there could be as many as 9 in the Santa Barbara Channel area. (This total could be 29 when all other oil activities are totaled.) The expected number in all other areas except the Tanner-Cortes area (1.14) is less than one.

Due to advancement of technology and mitigating measures it is possible that the amounts and frequency of spillage can be cut substantially. The effects of crude oil and petroleum derivatives, depending on their concentration and composition, consists of lethal toxicity, sublethal effects, coating with weathered oil, behavioral changes, and habitat changes. Some specific types are:

- (1) Marine phytoplankton have been shown to suffer stress and mortality when exposed to oil during laboratory experiments.
- (2) Copepods have been found ingesting and passing oil droplets without apparent harm. The copepods, however, serve as an important link in the food chain between phytoplankton and larger animals and ingested hydrocarbons are therefore passed on to larger organisms indicating the possibility of at least temporary food chain magnification.

- (3) Laboratory experiments show that fish may be killed during the egg and larval state after exposure to crude oil. Respiratory surfaces become clogged and damaged in juvenile and adult stages. These effects would occur if spills come in contact with eggs and larvae in the breeding zones resulting in a significant decrease in population in those areas involved.
- (4) There is the possibility that during spring months an oil slick on the San Pedro Shelf could kill large numbers of anchovy larvae as they gulp air at the surface at night. The impact of this mortality on the total fish population within the Bight is not known but probably will not be critical.
- (5) The neuston community will experience mortality, the significance of this impact in relation to the total Bight is probably slight.
- (6) In the event of an onshore oil pipeline leak or spillage at an onshore facility, vegetation would be affected according to the severity of spill. A small leak may do little damage. A severe leak, however, may contaminate the substrate and kill the vegetation that comes into direct contact with the oil and several years may be required for recovery. Small animals in contact with the oil would likely be killed. Rare endemics within the area having a restricted geographical range could become extinct, while most populations of the abundant species with a wide geographical range could recover biologically in five years or less.
- (7) Large numbers of diving and swimming seabirds and diving ducks will be killed. The greatest mortality would occur in the winter when pelagic birds reach their largest concentrations. Spring and summer (March through August) is the breeding season and is also a critical time because feeding of adult and young is restricted to limited areas during this period. The threat to endangered species is considered minimal unless an oil spill penetrates an estuary. The probability of this is considered low due to the small number of estuaries in the sale area and the fact that all but one have narrow entrances. However, in the event that a spill did enter an estuary the probability that it would impact upon one or more endangered species or their habitats increases. Any impact of this nature would be considered adverse and significant.

Although the potential for harm is present, the inability to predict the frequency, amount, location, and duration of a given accidental oil spill makes an assessment of the scope of the effect on birds uncertain. Table III.E.3-1 shows the probabilities of one or more spills and the most likely number of spills greater than 1,000 BBLs occurring and contacting seabird breeding and nesting areas over the production life of the proposed lease areas. The table shows that there is up to a 99 percent probability that one or more spills will contact a seabird breeding and nesting area. Table III.E.3-1 shows probabilities of spills occurring in a given area reaching seabird breeding and nesting areas. The severity of kill depends upon the size of the spill, the area it covers and the season of year. Vulnerability is greatest during the spring nesting and migration period and fall migration peak. Other variables include type of beach oiled (rocky shore or sandy beach), the location with respect to urban areas and proximity to bays and marshes.

- (8) The canopy community of kelp beds will suffer mortality.
- (9) The highly productive and diverse Tanner and Cortes Banks will be impacted from platform and pipeline construction. There will be a severe impact on many members of the community, including pinniped, sea birds and corals resulting from oil spills.
- (10) The long term effects are not well understood. Chronic low-level pollution can cause subtle changes in organisms and communities. Another unknown area of possible concern is that of synergistic effects of all of the pollutants, especially oil, trace metals, and polychlorinated biphenyls (PCB). Subtle effects, carcinogenicity, and synergistic effects of oil are three areas that need further research

If an oil spill impacts upon a sandy beach, a condition will result which may last from weeks to several years or more, depending on the amount of oil and size of the area impacted. Since about 80 percent of the mainland coastline is classified as sandy beach, the probability of a spill reaching a sandy beach within the area is approximately 0.80 but only about 0.20 on the offshore islands. The reciprocal probabilities would apply to rocky shores. The size of the beach affected can vary from less than a mile to 48 miles depending upon the conditions in the area at the time. A moderate amount of damage will occur to the sandy beach community during much of the year. However, if a large spill occurs during the summer or

period of maximum population density, more severe effects are expected. The extent and magnitude of these possible effects are not presently known.

If mechanical means are employed in beach cleanup operations (bulldozers, front end loaders and other earth moving equipment) as was done following the Santa Barbara and Arrow oil spill incidents, then shoreline equilibrium may be upset by beach removal. Excessive removal of beach materials can lead to erosional problems unless enough sand and gravel, for example, are available to replace the removed beach materials.

If a large oil spill impacts upon a rocky shore, adverse impacts greater than that on sandy beaches will occur. The direct death from smothering of intertidal organisms will be greater than that on sandy beaches, and be as high as 100 percent for certain upper intertidal species. Cleaning of surfaces with hot water spray, as was done in the Santa Barbara blowout, will completely eliminate the community from the sprayed area, and biological recovery will require as much as 5 years. If toxic components of oil do reach shore, extensive destruction could occur and complete biological recovery could take the same amount of time.

Much of the area defined as Areas of Special Biological Significance (ASBS) was based on highly productive or unique intertidal areas, although these significant areas usually extend to subtidal areas as well. With oil platforms 3 miles away, an oil spill would have a relatively good chance of contaminating a State-defined ASBS which, by definition are "areas containing biological communities of such extraordinary, even though unquantifiable value that no acceptable risk of change in their environments as a result of man's activities can be entertained."

B. Vegetation

Unavoidable adverse impacts on kelp and intertidal vegetation was discussed in Section V.A.

Salt marsh vegetation will be killed as a result of an oil spill hitting shore. The roots and rhizomes of marsh plants can withstand light to moderate oiling; therefore, permanent vegetative damage will be minimal. However, heavy and/or chronic oiling results in mortality of both vegetative and root and rhizome portions of the plants.

Cleanup operations resulting from oil spills will cause coastal and marsh vegetation to be trampled and killed. This will result in marsh and coastal erosion. Marsh erosion, however, will be minimal and short term, unless water flow characteristics are altered. If this happens, the effect will be long term and may result in salt water or fresh water intrusion and erosion with subsequent vegetation changes.

Construction of onshore facilities will cause permanent changes in upland vegetation. The area surrounding onshore facilities will probably be maintained as grass rather than the dominant pre-development vegetation. The probable sites of these facilities are discussed in Section III.A.3.d.

C. Wildlife Species and Habitat

Chronic oil pollution will increase as a result of the proposed sale. In terms of spills alone, this represents an increased threat of 0.7 spills per year (50 bbls or larger), which, when combined with existing leases, tankering and oil imports represent an estimate of 2.25 spills (50 bbls or larger) per year (see Section III.A). Slightly more than half of these estimated spills would occur in the Santa Barbara Channel area, an area when combined with the northern Channel Islands area is rich in wildlife and wildlife habitats.

Any increases in chronic oil pollution will increase environmental stresses already being imposed upon wildlife and its habitat. In the event of a spill, any birds (either pelagic or coastal) coming into contact with the oil would suffer and probably die even if proper treatment could be applied.

Nearshore pipeline or tanker spills would affect coastal birds. A spill hitting any large concentration of seabirds would result in high mortality.

The effects of oil on pinnipeds and cetaceans are just beginning to be understood. Proposed lease tracts as well as probable tanker and pipeline routes, occur just to the north of San Miguel Island, the most significant pinniped breeding island in the Southern California Bight, if not the entire Pacific coast south of Alaska. A spill in this area would be expected to reach the island within 3 days or less. Such spills would impact breeding grounds and may alter vital habitat. Based upon results of the oil spill risk model (POCS Reference Paper No. VI) run for the proposed sale, the greatest threat of a spill impacting San Miguel Island would be presented by activities occurring to the north and northwest of the island and within the Santa Barbara Channel. Activities associated with the cleaning of beach oil would disturb pinnipeds and, if occurring during the breeding season, would significantly increase pup mortality. Vehicles or vessels operating near pinniped rookeries would disturb the animals and, if occurring during breeding, may significantly increase pup mortality.

Cetaceans are numerous throughout the area. Recent surveys indicate that Gray whales have been migrating along a path farther offshore than usual. It is felt that disturbance due to increased human activities in the nearshore areas are, at least partly, responsible. Accelerated development offshore resulting from the proposed lease sale would only increase this disturbance.

Onshore development, if located in a relatively "natural" area, would result in the loss of terrestrial wildlife habitat. Facility sites could be lost for the duration of the project.

D. Endangered and Threatened Species

Of the 37 species discussed in Section III.C.1.f, the combined impacts from the proposed sale will be negligible to minor for 26 species. Potential Sale No. 48 impacts upon the remaining species are listed as moderate (10 species), and severe (1 species). Existing mitigating measures and agreed-upon stipulation will not diminish potential impacts upon these 37 species sufficiently to change any of the ratings in Table III.C.1.f-1. Without these mitigating measures/stipulations, the potential for impacts would be increased.

Marine mammals and seabirds are probably the most vulnerable species. Oil spills represent the greatest threat in both cases. Containment and the use of dispersants will help mitigate impacts. However, due to their wide ranging movements, susceptibility to oil and the expected number of spills, impacts upon the six endangered whales will remain moderate to minor, and negligible to heavy for the eight bird species.

Pipeline construction is considered to have a moderate potential for disruption of brown pelicans, light footed clapper rails and Beldings savannah sparrows. Careful selection of pipeline routes and proper timing of construction to avoid nesting seasons would reduce impacts upon these species. Nevertheless, combined Sale No. 48 impacts will remain as described in Table III.C.1.f-1.

E. Channel Islands

Potential impacts upon terrestrial resources on the Channel Islands from placement of pipelines, storage facilities etc., are effectively mitigated because State regulations prohibit placement of such structures on the islands.

The high probability of oil hitting the islands (Table III.C.1.i-1) make cleanup operations likely. The activity of men and equipment along contaminated beaches will disrupt the natural conditions. These disturbances, however, will presumably be less serious than the alternative of leaving the oil.

Unavoidable impacts will occur to the islands' marine biological resources (see Section V.C). The most vulnerable resources are the sea birds, seals and sea lions. Their vulnerability to oil (even weathered oil) and the high probabilities of spills around the islands mean that even with existing mitigating measures and agreed upon stipulations losses to sea birds, seals and sea lions will occur (see Sections III.C.1.d, e and III.E.3). Losses to intertidal organisms will be mitigated more significantly than for sea birds, seals and sea lions. Nevertheless, potential intertidal impacts will remain high, particularly around the northern Channel Islands.

Potential impacts to the hydrocoral communities can be effectively mitigated by 43CFR6224, Outer Continental Shelf Protection of Coral Reefs (see Section IV.A.1).

Kelp bed impact potential is moderate and will not be substantially diminished by the mitigating measures and agreed upon stipulations.

F. Air Quality

This section presents a summary of the impacts on air quality from Sale No. 48. The impacts are discussed, in order, for Santa Barbara and Ventura Counties, Los Angeles and Orange Counties, San Diego County, and other affected areas for each scenario analyzed. Inert and photochemical contaminants analyses results are summarized and compared to standards. The State and Federal ambient air quality standards are set to protect public health and welfare. The impacts are too small to quantify any health impacts. Major emission sources are identified.

It should be emphasized that impacts were determined: 1) for the peak production year of 1986 when emissions should be greatest, and 2) when meteorological conditions should maximize impacts. Thus, other years and other times during 1986 will have smaller impacts than those discussed below.

New Source Review (NSR) applies to all onshore emission facilities. The NSR process will insure that all impacts from onshore emissions will be sufficiently mitigated or offset to be compatible with all air quality standards and Attainment Plans mandated by the Clean Air Act. Authority over air quality emissions offshore OCS areas is presently being decided in court (EPA vs. Exxon). If EPA has authority, then NSR will apply to offshore areas as well as onshore. This will ensure that the impacts identified below are mitigated or offset (no offsets were used in the analysis). If DOI has authority, the requirement to offset for offshore emissions is not clear at this time. Sale No. 48 emissions are not included in and, thus, are not consistent with the local counties air quality Attainment Plans mandated by the Clean Air Act. Thus, the impacts identified below from offshore emissions would result in a delay of attainment for any non-attainment area. This delay either has to be offset by actions put into revised Attainment Plans or it might result in the automatic federal sanctions mandated by the Clean Air Act.

1. Santa Barbara and Ventura Counties

a. Photochemically Reactive Contaminants

i. Regional Impacts: The model results indicate that the emissions resulting from the addition of Sale No. 48 would increase the peak O_3 concentration by 0.001 ppm or less which is about 1 percent of the standard, for all trajectories analyzed for Santa Barbara County, for both normal and 100-percent tankering scenarios which is about 6 percent of the standard. The increase is 0.005 ppm or less for the Ventura County trajectories for both normal and 100-percent tankering scenarios. The peak O_3 concentrations predicted by the model are above the 1-hour Federal oxidant standard of 0.08 ppm for trajectories into Santa Barbara and Ventura Counties and slightly below the standard for the Santa Maria trajectory into northern Santa Barbara County for both tankering scenarios. In general, the impacts are slightly higher for the 100-percent tankering scenario than for the normal tankering scenario.

Although the exceedance of the O_3 standard would have occurred without Sale No. 48, this sale does increase the resulting peak O_3 concentrations and could delay the attainment of the Federal standards, although this effect may not be measurable in Santa Barbara County. There were no emission offsets identified and none were modeled.

ii. Cumulative Impacts With Other Major Projects:

The model results indicate that Sale No. 48 increases peak O_3 concentrations by 0.002 ppm or less for normal tankering and by 0.005 ppm or less for 100-percent tankering over the values which would occur if all other proposed projects took place. The peak O_3 concentrations are close to and above the Federal 1-hour standard of 0.08 ppm. Thus, although the increase is small, Sale No. 48 could slightly delay the attainment of the Federal standard.

iii. Accident Impacts: The model results indicate a significant peak O_3 concentration impact potential from the accidents analyzed. The smaller spill and blowouts would cause less than 0.003 ppm increase. The larger 10,000 bbl spill could cause a 0.07 to 0.09 ppm increase in O_3 concentration at worst, resulting in peak 1-hour values varying from 0.18 ppm to 0.15 ppm depending on the trajectory. These values are over the Federal 1-hour standard.

b. Inert Contaminants

i. Regional Impacts: The regional impacts of Sale No. 48 are generally insignificant and the maximum impacts are located greater than 3 miles from shore except for the impacts of the gas and oil processing facilities onshore in Ventura. The analysis assumes that all oil and gas processing associated with both Sale No. 35 and Sale No. 48 with normal tankering is done at a single location. The modeling of the emissions from this processing predicts exceedances of the NO_2 1-hour California standard of 0.25 ppm and the Federal NO_2 annual average standard of 0.05 ppm in the Ventura area.

The maximum 1-hour NO_2 concentration predicted by the regional model was 0.66 ppm. When 100-percent tankering is assumed, and thus no processing is done in Ventura, the impact of Sale No. 48 is very small and located beyond 3 miles from shore. The scenario which includes Sale No. 48 with 100-percent tankering plus the other major projects, results in exceedances of the NO_2 1-hour standards, but the contribution from Sale No. 48 activities at the location of the maximum is insignificant (<0.01 ppm).

The regional CO , TSP, and SO_2 impacts of the normal operation of Sale No. 48 are insignificant (less than 10 percent of the inspection standards) and occur beyond 3 miles from shore; the 100-percent tankering scenario has slightly larger impacts than the normal tankering. The scenarios with the other major projects show significant SO_2 impacts onshore, but the impacts are from the other major projects (mainly Vaca Tar Sands and Elk Hills projects) and not associated with Sale No. 48. The Sale No. 48 activities have an insignificant additional impact with either normal or 100-percent tankering.

The impact of offshore platforms and SBM's associated with Sale No. 48 could cause an exceedance of the PSD Class I increment in the potential Class I areas of the Channel Islands. Proper siting could mitigate this impact (which NSR would ensure).

Accidents result in TSP and H₂S impacts located beyond 3 miles from shore.

ii. Impacts of Specific Sources: The maximum downwind impacts from the various sources associated with Sale No. 48 in Santa Barbara and Ventura Counties were analyzed. There were significant impacts of NO₂ and H₂S from the gas and oil processing facilities in Ventura. The model indicated that the plume centerline NO₂ impact at the surface would be above the 1-hour standard over a broad range from 5 to 35 km (3.1 to 21.7 miles) downwind. Plume centerline H₂S concentrations peak at 0.15 ppm, decrease very rapidly, and are within standards by 2 km (1.2 miles) from the source. These results are very conservative (i.e., very high) because of the assumption that all oil and gas processing is done at a single location in Ventura and that all NO_x emissions are NO₂. In addition, the SBM's in the Santa Barbara Channel will also result in levels of TSP and NO₂ over the standards close to the emission source. However, the concentrations decrease rapidly with distance so that by 2 km (1.2 miles) downwind, the concentrations of the pollutants are all within standards. Thus, the impacts on the populated areas onshore are insignificant.

Accidents result in significant impacts for TSP, NO₂, SO₂ and H₂S. A blowout with fire results in peak 1-hour concentrations, excluding background, of TSP, NO₂ and SO₂ of 1,380 µg/m³, 0.25 ppm and 1.64 ppm respectively. The NO₂ and SO₂ values are at and above 1-hour standards and the TSP level will lead to exceedance of the 24-hour standard of 100 µg/m³. The blowout without fire results in a 1-hour peak H₂S concentration of 0.11 ppm - well over the standard of 0.03 ppm. These accident impacts are valid for all regions.

2. Los Angeles and Orange Counties

a. Photochemically Reactive Contaminants

i. Regional Impacts: The modeling results indicate that the emissions resulting from the addition of Sale No. 48 will increase peak O₃ concentrations by 0.001 ppm or less for normal tankering and 0.003 ppm for 100-percent tankering. The peak O₃ concentrations are 0.187 ppm to about 0.233 ppm, significantly above the Federal 1-hour standard of 0.08 ppm with or without Sale No. 48. Both scenarios have a small but adverse impact, which may not be measurable on attaining the Federal 1-hour standard. There were no emission offsets identified, and none were modeled.

ii. Cumulative Impacts With Other Major Projects: The model results indicate that Sale No. 48 would increase peak O₃ concentrations by 0.003 ppm. The peak O₃ concentration is about 0.25

ppm with or without Sale No. 48, but Sale No. 48 will have a small adverse impact on attainment of the Federal 1-hour standard. This delay may not be measurable since Sale No. 48 causes less than 1 percent of the O_3 concentration which would have occurred without Sale No. 48.

iii. Accident Impacts: The modeling predicts a significant impact potential on peak O_3 concentrations for the accidents analyzed. The blowout and smaller spills analyzed result in about a 1-percent increase to about 0.24 ppm in peak O_3 concentrations. The larger 10,000 bbl spill can cause a significant increase in peak O_3 concentration from 0.23 ppm without the accident to 0.38 ppm with the accident, which results in a change from a stage I (0.2 ppm) episode to a stage II (0.35 ppm) episode as defined by the California Air Resources Board. (SCAQMD, 1977).

b. Inert Pollutants

i. Regional Impacts: Maximum background concentrations for TSP and NO_2 exceed standards throughout the shore area, as well as offshore for TSP. Thus, any impact from Sale No. 48 will be to increase the degree of standard exceedance for these pollutants. For TSP, all maximum impact locations from Sale No. 48 are located beyond 3 miles from shore. The maximum 24-hour background concentration (without Sale No. 48) is predicted to be greater than the standard, with the impact of Sale No. 48 increasing the 24-hour average exceedance by 2 to 3 $\mu g/m^3$ - well offshore. The impact of Sale No. 48 TSP emissions at onshore locations is very small.

Under the normal tankering scenario, gas processing activities onshore would increase 1-hour nitrogen dioxide concentrations by 0.01 ppm, from 0.30 ppm to 0.31 ppm, in the regional scale. Exceedance of the annual standard is not anticipated, however. The impact from Sale No. 48 on CO and SO_2 concentrations is insignificant.

ii. Impacts of Specific Sources: The platforms and SBM's are well offshore and their impacts peak within 2 km (1.2 miles) of the source. All pollutant maximums for platforms and SBM's are well under applicable standards.

The gas and oil processing facility in Los Angeles County would cause maximum NO_2 impacts approaching the 1-hour standard without Sale No. 48 or background included. Sale No. 48 increases the NO_2 maximum by 0.02 ppm. Sale No. 48 increases the maximum 1-hour TSP concentration by 5 $\mu g/m^3$, from 48 $\mu g/m^3$ to 53 $\mu g/m^3$, without background included.

Maximum concentrations of pollutants from a blowout with fire, which is a worst case for inert pollutants, are the same as for Santa Barbara and Ventura Counties.

iii. Visibility: The visual range will decrease in the area of maximum impact from a normal range of 18 km (11.2 miles) offshore to a visual range of 17.4 km (10.8 miles) for normal tankering and to 17.1 km (10.6 miles) for 100-percent tankering. In the Tanner/Cortes field, the visual range will decrease from a normal value of 34 km to 32.9 km (21.1 to 20.4 miles) with normal tankering and to 29.4 km (18.3 miles) with 100-percent tankering. Sale No. 48 should have an insignificant impact on the maintenance of the State visibility standard.

3. San Diego County

a. Photochemically Reactive Contaminants

i. Regional Impacts: Emissions resulting from Sale No. 48 increase peak O₃ concentrations by 0.001 ppm or less for both normal and 100-percent tankering scenarios. The peak O₃ concentrations are expected to reach about 0.14 ppm with or without Sale No. 48, which is above the Federal 1-hour standard.

ii. Cumulative Impacts With Other Major Projects: Since the additional other major projects included in the cumulative impact analysis are all located well outside of San Diego County, there is no difference between the regional impacts above and the cumulative impacts.

iii. Accident Impacts: The model results indicate a significant impact potential on peak O₃ concentration from the accidents analyzed. The blowouts and smaller spills analyzed result in about 0.003 ppm or a 3-percent increase in peak O₃ concentrations. The larger 10,000 bbl spills can cause a significant increase in the peak O₃ concentration from 0.12 ppm without the spill to 0.20 ppm with the spill.

b. Inert Contaminants

i. Regional Impacts: Sale No. 48 impacts in San Diego County are located more than 3 miles offshore, where background concentrations of contaminants are below standards. The regional impacts are generally small and are within Federal and State standards. The emissions of Sale No. 48 have an insignificant impact on the shore in the San Diego area.

ii. Impact of Specific Sources: The platforms and SBM's are well offshore and their impacts peak within 2 km (1.2 miles) of the source. All pollutant maximum concentrations from platforms and SBM's are well under applicable standards.

The peak concentration from blowout with fire, which is the worst-case condition for inert pollutants, is the same as for Santa Barbara and Ventura Counties.

iii. Visibility: The visual range offshore will decrease from a normal value of 18 km (11.2 miles) in the area of maximum Sale No. 48 impact to a value of 17.4 km (10.8 miles) for normal tankering and to 17.1 (10.6 miles) for 100-percent tankering. Sale No. 48 should have an insignificant impact on the maintenance of the State visibility standard.

4. Other Affected Areas

The other affected area is the part of the study area south of the U.S.-Mexico border. The area north of Point Conception was discussed as part of Santa Barbara County.

a. Photochemically Reactive Contaminants

i. Regional Impacts: The model results indicate that the emissions from Sale No. 48 with either tankering scenario will increase the peak O_3 concentration just south of the border by less than 0.001 ppm from the level (0.124 ppm) it would be without Sale No. 48, which represents an unmeasurable impact.

ii. Cumulative Impact with Other Major Projects: The other major projects are all located far enough north not to have any impact south of the border.

iii. Accident Impacts: The model results indicate a significant impact potential on peak O_3 concentrations south of the border from the accidents analyzed. The large 10,000 bbl spill can cause a significant increase in peak O_3 concentrations if the contaminants are carried south of the border. The impact results in an increase in peak O_3 concentration from 0.06 ppm to 0.14 ppm which is over the U.S. standard of 0.08 ppm.

b. Inert Contaminants

i. Regional Impacts: Sale No. 48 will not have significant inert pollutant impact on areas south of the U.S.-Mexico border.

ii. Impacts of Specific Sources: The maximum concentrations during normal operation will be insignificant by the time the plume has traveled south of the U.S.-Mexico border.

The accident scenario of a blowout with fire, the concentration in Mexico will be over a factor of 10 less than the peak centerline impact discussed for Santa Barbara County. Thus, the concentrations of the contaminants will be within both U.S. and California standards by the time they are carried to Mexico.

G. Water Quality

Normal offshore oil development and operations from the proposed lease sale will have unavoidable effects of varying degrees on the quality of water within the Southern California Bight.

During burial of pipelines, placement of structures (platforms), and drilling operations, bottom sediments will be put into suspension. As a result of this activity, the turbidity of the water will be increased for the duration of the activity periods. In the case of pipelines, settled pollutants would be reintroduced into the water column and pollutants might be mobilized.

The discharge of drill cuttings and drilling muds will degrade the quality of ocean water for possibly 1 km or as much as 2 km from the point of discharge. The degree of this impact will be greatest at the point of discharge decreasing in a down current direction. The long-term impact of drilling mud chemicals associated with the water quality is not unequivocally known.

The total formation water discharged into the marine environment as a result of the proposed sale will contribute a large mass of pollutants (Table III.A-8). These pollutants that will ultimately reside in the Southern California Bight will most significantly effect those areas not adjacent to the mainland. For areas adjacent to the mainland, the precipitant effect of the formation water will be insignificant in comparison to current anthropogenic pollution.

Treated sewage may have a significant effect on the ocean water quality in the immediate area of sewage discharge. This impact would result from the treated sewage exerting a slight increase in the oxygen demand, nutrients, residual chlorine and light attenuation.

Five major oil spills and additional chronic oil leaks or spills are expected from the proposed oil lease sale. Additionally, 14 major oil spills are expected as a result of tanker activity and oil production on previous offshore leased tracks. The Santa Barbara area is expected to have about 70 percent of the total (19) major oil spills while the San Pedro area is expected to have 26 percent of the total major spills; Dana Point-San Diego area is expected to receive 1 percent of the total major oil spills; Santa Rosa area is expected to have 1 percent of the total major oil spills; Tanner-Cortes is expected to receive 19 percent of the total major spills; and Santa Barbara Island area is expected to receive 2 percent of the major oil spills. The most toxic effects resulting from an oil spill will be within the first 2 to 3 days after spilled oil initially enters the water. Areas where ocean water will most significantly be impacted from a major oil spill will be Santa Barbara Channel, San Pedro Shelf, and Tanner and Cortes Banks.

H. Commercial Fishing

There are several unavoidable adverse environmental effects on the commercial fishing industry of Southern, central, and Baja California should the proposal be implemented.

An obvious unavoidable impact will be the loss of available fishing space at all sites occupied by temporary or permanent structures. The amount of potential fishing space lost is roughly equivalent to 201 acres (0.24 square nautical miles) per structure. Spatial distribution of structures may significantly increase this lost space, especially if the interstructure space cannot be fished.

Bottom debris, accidentally or intentionally discharged from petroleum industry-related vessels or structures are expected to continue to be a point of conflict with commercial fishing operations. This is especially true in the Santa Barbara Channel trawl grounds where trawl nets can snag debris or structures.

A large oil spill will temporarily prevent commercial fishing operations within the area affected by the spill. The estimated costs to the commercial fishing industry represented by such an event are difficult to predict and would depend upon the area affected and the season of the year. In any case, the estimated losses in catch, income, and uncompensated damages to the fishing fleet would be substantial. As much as 2 months of fishing effort may be lost within the effected area (or more, depending upon the size of a spill). This would represent an economic loss of as much as \$800,000 to the commercial fishing industry.

Increases in vessel traffic (e.g., seismic survey ships, supply boats, etc.), resulting from the proposed sale will provide additional hazards to commercial fishing operations, however, such day-to-day contacts are expected to represent minimal impacts.

Chronic low level discharges in the form of small spills, discharges of drilling muds and formation waters may impact commercial fishing by lowering species' reproductive capabilities, therefore, affecting yield. However, such impacts are difficult to predict at this time.

I. Sport Fisheries

Should a spill occur in a sportfishing area, fishing would be temporarily discontinued until cleanup has been completed and fish stocks have returned to the area in sufficient quantities. The possibility of fouling gear and the tainting of fish flesh by oil may further deter sportfishing. A major spill will have economic impacts upon commercial charter boat operators who rely upon sportfishing activities for their living.

There is no doubt that production platforms act as artificial reefs. However, the benefits offered sport fishermen are in question. The general practice by oil companies to discourage sport fishermen from approaching closer than 200 feet to a platform may limit their practicality.

J. Shipping and Navigation

Unavoidable adverse impacts to shipping and navigation as a result of this proposed Sale No. 48 could be caused by the petroleum activities in or near the four shipping lanes in the Southern California Bight area (Figure III.A.3-1). The petroleum activities are the placement of fixed structures in or near these shipping lanes, service boats crossing the shipping lanes to service the fixed structures, and oil tankers in the shipping lanes.

The four concerned shipping lanes are: Coast Guard-established Santa Barbara Channel Traffic Separation Scheme, Coast Guard-established Gulf of Catalina Traffic Separation Scheme, non-established shipping lanes from San Diego to Long Beach, and non-established shipping lanes for foreign ships.

The proximity analysis (Appendix F) for shipping indicates that the highest relative value in points of impacts between ships in the above petroleum activities and four shipping lanes occur in the Santa Barbara Channel; the lowest, in the Dana Point-San Diego tracts.

The oil tankers from the Ventura area could increase the relative shipping traffic in the Santa Barbara Channel traffic lanes (Section III.C.3). Tankers to San Francisco Bay could increase the relative shipping by 2.0 percent; tankers to the Long Beach area, by 13.5 percent.

The above petroleum activities could be contributing to the following: expected number of oil spills greater than 1,000 bbl by oil tankers of 2.18 (Section III.A.4.a); and estimated number of collisions between ship and platforms of one (Section III.A.4.c).

K. Cultural Resources

Cultural resources may not be discovered with certainty by surveys, onshore or offshore. Onshore, those which remain undiscovered may be damaged or destroyed partially or wholly if excavation occurs. When an archeological site must be excavated because no other option exists, then some values which might accrue to a future investigator due to greater knowledge and more sophisticated analytical techniques and equipment, may be permanently lost. Concealment of finds by contractors could also result in their destruction. The duration of these impacts would be permanent.

Other damage to archeological resources could come from oil contamination. Historical and archeological materials soiled by an accidental oil spill may not survive subsequent cleaning and restoration efforts. Porous materials could be rendered unsuitable for carbon dating techniques. The probability of such a polluting event occurring and interacting with artifacts is low and the potential for significant resource destruction appears small, although it does exist.

The possibility of pot hunting or pilfering is strong.

Even with diligently run offshore surveys, single artifacts or small sites will very likely not be found. Small ships or canoes, buried in sediment, and containing little or no ferrous materials are unlikely to be discovered.

In areas where previous drilling or dumping has taken place, numerous anomalies from casing and debris complicate survey work and evaluation. Some cultural resources may be lost as a result.

As currently written and implemented, NTL 77-3 may be allowing undiscovered cultural resources to remain undiscovered. Thus, activities on the lease may destroy or damage these resources or preclude their subsequent discovery. Utilizing non-cultural resource oriented personnel to investigate anomaly sources is likely to result in subsequent pilferage, an unavoidable loss.

Offshore investigative actions prior to leasing or to exploratory drilling, may impact seafloor cultural resources. This would include dredging for bottom samples and shallow coring.

After abandonment, casing left in the wells and piling used to anchor the platform legs to the seafloor are left and these create large, permanent anomalies affecting a wide area. Similarly, abandoned pipelines and cables will create magnetic anomalies, as well as side scan sonar targets. Debris accidentally or intentionally discarded at drill sites, or enroute to and from these sites leaves permanent anomaly sources which complicate future searches.

In water greater than 120 m (394 feet) deep, no surveys are required. This could result in damage or destruction or subsequent detectability problems for vessels lying in these greater depths.

Onshore, unavoidable damage to historical or prehistorical values will occur when structures or sites are not preserved or are not identified in time to take action for their preservation. Alteration of the surrounding environment of an historic or prehistoric site or structure would be an unavoidable impact if the developer possessed or took no other option for a development site.

L. Recreation and Tourism

Certain unavoidable impacts on the recreation resource within the Southern California Bight area will occur during the exploration, construction, and operational phases of the proposed project. The impacts will affect both the onshore and offshore uses and activities and will be temporary in duration.

During the exploration phase, the main impact will be caused offshore by the introduction of added vessels into the lease areas. Since the vessels will probably operate from Ventura-Port Hueneme and the Los Angeles-Long Beach ports, the impacts will occur between these ports and the offshore areas. As a result, the beaches and nearshore recreation areas will not be impacted. The major recreational activities disturbed or disrupted are boating and sportfishing. Since exploratory vessels will traverse the lease areas, recreational activities will be disrupted only for short periods of time.

Since oil production activities will peak by 1987, the impacts during this phase can occur for several years and even overlap those noted for the production phase.

Associated with construction activities will be an increase in vessel traffic, offshore and onshore pipelaying activities, water turbidity, the movement of fish from one location to another on a temporary basis, and visual disruption for given periods of time. As indicated, the impacts will be temporary in time and disruptive in nature. Impacted activities, mostly due to increased vessel traffic and water turbidity, will be boating, fishing, diving and some swimming. Onshore active and passive types of recreation may also be disrupted if pipeline construction occurs on recreation sites or in close proximity. This will result in both a quantitative and qualitative drop in the recreation resource. The impact will be of short duration since water turbidity will clear through settling and dispersion and pipelaying operations across beaches is accomplished rapidly. With the drop in attendance at one site, is a corresponding increase of attendance at another site, thus, raising the possibility of temporary overcrowding at other sites. Again, the visual effects coupled with the associated noise, dust, odors, and vibration found with construction activities will generally temporarily lower the recreational desirability of the site. During normal operations of offshore oil and gas production, the main impact on recreation will occur offshore.

There are several unavoidable adverse effects which will affect recreational boating as a result of the proposed sale. Either the risk or the impact will persist throughout the life of the leases, if issued, and end with their abandonment. This could range anywhere from 20 to 40 years.

Increased traffic in harbor areas and associated sea lanes could make pleasure boating less enjoyable and potentially more hazardous. This would be particularly true if barging or tankering is used to transport significant portions of the production. Platforms could constitute an obstruction to boats under certain conditions. The change in the character of the open sea caused by the presence of platforms would constitute an esthetic impact for boaters. Slicks, both large and small, appear to be unavoidable consequences of offshore oil production. Small slicks would have an esthetic impact and could also stain boats or foul fishing gear if inadvertently encountered. A large slick such as that which attended the 1969 Santa Barbara blowout would cause disruptions in recreational boat usage and patterns of use. Closure of harbors to prevent oil incursion could result in prevention or restriction of boat use for periods of 3 weeks or more. A Santa Barbara size spill in the San Pedro area could close all marinas thereby resulting in losses in excess of 12,000 boating days.^a

Small slicks such as those which persisted in open waters for weeks following the Santa Barbara spill would inhibit recreational boating resulting in a loss of several more thousand boating days. In total, each event of this magnitude will likely result in a loss of 50,000 to 100,000 participation days.

The main impact on recreation certainly would be from an oil spill or leak which might wash upon the shoreline. The impact will be disruptive and will close some areas during the cleanup and restoration period.

There is an attendant unavoidable and permanent loss of recreation opportunities for those who, on the occasions of the previously discussed impacts, do not or cannot seek recreation at another area or another form of recreation.

1. Impacts by Area

a. Santa Barbara Channel Impacts: The visitation loss for the mainland coast would be 26,000. The beach use loss would be \$104,000.^b

b. San Pedro Bay Area: The visitation loss would be 2,800 but could reach 100,000. The beach use loss would be \$11,200 to \$400,000.

c. Dana Point-San Diego Area; Impact potential is low.

d. Santa Rosa Area: Impact potential is very low.

^aBoating day is defined as the use of the vessel for any portion of a day.

^bBeach use loss is based on one visitor day or equal to \$4, which is the price of an alternative recreation activity i.e. attending a movie. This is not intended to be representative of the value of a "tourist day" to a region, only the cost of an alternative which might be sought by a resident or tourist alike.

e. Tanner-Cortes Area: Only diving and boating would be impacted and no use figures are available. Use is light, however, because of distance and sea conditions.

f. Santa Barbara Island Area: Impact potential is low. There is no beach recreation, only boating, diving, and nature study.

g. Tankering Leg Impacts: The impact potential for segments 42 and 43 is a 700 visitation loss. The beach use loss would be \$2,800.

2. Cumulative Impacts

a. Santa Barbara Channel Area: The impact potential is a visitation loss of 80,000. The beach use loss would be \$320,000.

b. San Pedro Bay Area: The impact potential is a visitation loss of 14,900 with a much higher figure possible. The beach use loss would be \$59,600.

c. Dana Point-San Diego Area: No impact potential is computed because the risk is low.

d. Santa Rosa Area Impacts: No public beach recreation is available. No data on boating and diving use around San Nicolas Island are available, but due to distance and restrictions around this Navy-owned island, use is fairly light. No impact potential is computed.

e. Tanner-Cortes Area: No public beach recreation is available at Navy-owned San Clemente Island. There is, however, moderate diving use around the island and light use on the banks. No data are available to compute impacts.

f. Santa Barbara Island Area: The potential visitation loss is less than 100. The beach use loss would be \$400.

g. Baja California Areas: Impact risk is low so no potential is computed.

Tourism losses, in the event of a spill, can be expected. The 1969 Santa Barbara spill experience indicates, however, that no net social cost occurs to the region. That spill occasioned a temporary diversion of tourist trade to surrounding areas, most in a close geographic proximity. Regionally, about a 5 percent tourism decline occurred for Santa Barbara County in the year following the spill (Mead and Sorensen, 1970). The decline this represented was made up by such areas as San Diego. Mead and Sorensen allow that private costs (losses) almost certainly occurred "But the general level of tourism in the (Santa Barbara) County was not significantly affected by the oil spill...".

The City of Santa Barbara suffered an adjusted bed tax collection decline of about 2 percent below that of 1968, for all quarters of 1969. A short run diversion is thus apparently to be expected as a result of an oil spill with limited temporary effects to local taxing entities and to individual private businesses.

M. Esthetic Values

Unavoidable adverse impacts will be the loss of solitude due to activity on isolated ocean areas. Vessel and air traffic will unavoidably add to the loss occasioned by the presence of rigs or platforms. Noises and odors may sometimes cause a decline in environmental quality.

The visual aspect of esthetic values is affected by platforms and by oil spills. Platforms, without significant design changes, will continue as visually disruptive elements in the seascape. Platforms also emit clarity decreasing effluents into the air and water. Air contaminants from onshore facilities as well as platforms may come from equipment exhausts and flaring, if utilized. Some hydrocarbon vapors may be added to the air, thus, contributing to reduced air clarity. Turbidity in the water comes from disposal of cuttings and some drilling muds. They create turbidity plumes extending down-current from the rig or platform for a few hundred meters.

Pipeline burial will also create unavoidable and temporary turbidity in the shallower waters where burial may be required.

Earth moving associated with onshore construction, creates visible scars, particularly, in steep terrain and in light colored soils.

Changes in land use resulting from this proposal and previous sales, will result in esthetic changes which cannot be analyzed without the specific project proposed in hand. Most land use change occurring will be from agricultural or undeveloped, to urban-residential to accommodate project induced population growth. In addition, shore-based facilities and induced industrialization could require several hundred acres.

Oil spills are statistically inevitable and, if uncontained or unrecovered, assuredly adverse esthetically. Oil spills range in size from barely discernible sheens to thousands of barrels. Numerous small spills depreciate the appearance of the water and result in tar balls on the beach. On the beach or rocky areas, the less viscous tar forms unattractive tacky lumps. The more viscous samples are dull in luster, incorporating much sand and other debris and probably not as noticeable. Smaller tar globules are hidden by sand and not readily avoided by beach users. This causes tar staining of feet and clothing.

Small spills are present with far greater frequency than larger spills, thus, the exposure to them is greater. Numerous other sources of oil cause tar balls and slicks will add to the total caused if this proposal is implemented. These are natural springs, ships, sanitary and storm outfalls.

Large spills obviously constitute an esthetic impact both at sea and at the shoreline. At sea, a large spill renders large areas of ocean unsuitable for boating or fishing. Spotting and staining of boats, causes people to avoid the areas of spills. Fishermen, likewise, wish to avoid staining of boats, fouling of gear and contamination of catch.

1. Impacts by Area

a. Santa Barbara Channel Areas: Impacts would be reduced by spill evaporation and shunting with booms so that about a 24,000 drop in visitation would occur.

For Anacapa Island, the problem of keeping most of the oil from the shoreline is soluble, but the loss of visitation would remain high because access to the island would remain very difficult due to slicks and booms. This loss is estimated to be one month's visitation, or 4,400.

Segment 27 (Zuma Beach to Santa Monica) loss in visitation would be about 76,000.

b. San Pedro Bay Area Impacts: A strike in Segment 26 (Santa Monica Bay) could result in a visitation loss of 649,000 while Catalina Island would lose 1,500.

c. Dana Point-San Diego Area Impacts: Risk is so low that no loss potential is computed.

d. Santa Rosa Area Impacts: No data are available on boater use of the area; therefore, impacts cannot be computed.

e. Tanner-Cortes Area Impacts: See comment for Santa Rosa Area.

f. Santa Barbara Island Area Impacts: The risk level at 5 percent is not significant; therefore, no loss potential is computed.

g. Baja California: The risk of a large spill contacting any one of these segments is less than 10 percent; therefore, no impact potential is computed.

2. Cumulative Impacts

a. Santa Barbara Channel Area: The risk for all projects raises Segment 28 to 10,000 visitation lost and Anacapa to 21,200. The other island impacts cannot be computed without boater or diver use data.

b. San Pedro Bay Area: For Segment 26 the loss equals 1,609,500 in visitation.

c. Dana Point-San Diego Area: The predicted loss potential is 3,200.

d. Santa Rosa and Tanner-Cortes Area: Without use data, potential impacts cannot be quantified.

e. Santa Barbara Island Area: The predicted impacts are a visitation loss of 5,000.

f. Baja California: None of the cumulative risks rise to 10 percent for any individual segments, thus, the risk is not considered significant.

g. Tankering Leg Impacts: The cumulative impact potential for Segments 32 and 42, respectively, is 25 and 2,300.

N. Land Use

The impact of facilities and growth induced as a result of the proposal, and their effect on land use could be significant on a community or sub-county basis. However, land use lends itself more easily to mitigation than any other sale induced impacts. All onshore facilities would be subject to all existing Federal, State, and local regulations e.g., State Coastal Zone Management Program, Local Coastal Plans, etc.

Unavoidable land use impacts resulting from the sale would be the long-term commitment of 24 ha (60 acres) of land for 4 new operations bases. Each base would require 6 ha (15 acres). Two bases would be located in the Santa Barbara Channel area of the Ventura-Santa Barbara County coast and two more in the Los Angeles-Long Beach Harbor area.

The long-term land use conflicts which could result from this sale will probably be resolved through the exercise of existing regulations and controls; the State Coastal Zone Management Plan or local coastal plans as they are completed and approved.

0. Socio-Economic

Population increases as described in Section III.E.14 will increase congestion and social stress in Ventura, Santa Barbara, San Diego and Los Angeles County to a minor degree. Orange County should experience no significant adverse social impacts as a result of proposed OCS Sale No. 48 direct or induced activity.

Felony crimes statistics indicate that the crime rate increases with population density. For example, Los Angeles County with a population density of 1,717 per square mile had a felony crime rate of 4,568 per 100,000 of population, while Santa Barbara County with a population density of 103 per square mile had a much lower felony crime rate of 2,050 per 100,000 of population (Table II.G.2.a-3 and POCs Reference Paper No. II). As Ventura, Santa Barbara and San Diego County become more densely populated as a result of proposed OCS Sale No. 48 activity, the crime rate in those counties could be expected to increase a minor degree. Using Los Angeles County as a high and Santa Barbara County as a low, the relationship between an increase in the population density per square mile and an increase in the crime rate is 0.78; that is, as the population density per square mile increases 100 per square mile, the crime rate increases 78 per 100,000 of population. If this relationship were to hold true in the future, then Santa Barbara County could expect to have an increase in the felony crime rate of one per 100,000; Ventura County an increase of 7.4 per 100,000 and San Diego an increase of 0.6 per 100,000, all based on the peak year population increases in 1986 (Table III.E.14-1).

Another unavoidable adverse impact is the accidental loss of life and injuries expected due to proposed OCS Sale No. 48-related development activity. It is projected that 2 to 3 accidental deaths and 943 injuries could occur during the life of the project. Although safety standards on the OCS are high, some accidents and deaths are probably unavoidable.

State and local governments can expect an unavoidable adverse financial impact as a result of proposed OCS Sale No. 48 direct and induced activity and resultant population changes. The peak State and local government deficit is projected to be \$14,626,000 in 1990, as discussed in Section III.E.15.c. The Coastal Energy Impact Fund, as provided for by the Federal Coastal Zone Management Act as amended in 1976, could be counted on to offset some of these adverse financial impacts.

P. International, Federal, State, and Local Activities

1. International: Oil spills from proposed OCS Sale No. 48 related activity could impact the Baja California, Mexico west coast and offshore islands. The Oil Spill Risk Analysis, POCS Reference Paper No. VI, conducted by the U.S Geological Survey indicates that the probability of an oil spill occurring and hitting the Baja Coast is small. The highest probability is only 0.05 that a spill will occur and hit the Baja Coast during the life of the project. If this small probability were to occur it could adversely affect Mexican fishing activities, tourism, recreation and desalinization plants.

2. Federal: Since practically the entire Southern California Bight is used for some kind of military purposes, the proposed sale related activity will reduce the space available for military use. This will cause an unavoidable adverse impact on military activities. The military will be required to cease activities in leased tracts and will conduct their activities under more crowded conditions. This can be expected to result in an increased probability of accidental collisions at sea and earlier surfacing of submarines to avoid contact with platforms and drilling rigs. (See Section III.C.4 for a complete discussion of Impacts on Military Uses.)

OCS activities could require the moving of established ocean dump sites to new locations since some of these sites are located in proposed lease tracts. If those tracts were leased, the EPA would probably designate new sites in their place (See Section III.C.5).

3. State and Local Activities: OCS drilling activities might drain State Oil and Gas Sanctuaries forcing the State of California to develop those areas. Oil spills hitting the shore and polluting offshore waters could have an adverse impact on recreation, tourism, boating, fishing, and air quality. These unavoidable adverse impacts are discussed in other sections of this chapter in detail (See Section III.C.9).

CHAPTER VI

VI. RELATIONSHIPS BETWEEN SHORT-TERM USE AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The extraction and consumption of mineral resources would preclude their use at a later date and reduce the total reserves in the long term. However, should this proposal result in the discovery of recoverable resources, known reserves could be increased and the area could be opened to additional future sales. If this took place, the activity period would be extended past the year 2000 and, therefore, could be considered as having more long-term effects (than described below) on the productivity of the offshore and onshore environments of the Southern California Bight. Future sales and extension of OCS related activities in this region could have pronounced long-term effects on many biological communities.

During peak year (1986) population increases of up to 34,451 are expected to occur in the counties of Santa Barbara, Ventura, Los Angeles, Orange, and San Diego, as a result of direct and indirect development. In the 12 coastal counties of central California, an additional increase of 365 is expected. Note, however, that of this increase of 34,816 only about 65 percent, 22,633, would be coming from out of State. The remainder simply represents population shifts within the State. These shifts/increases may result in adverse short-term impacts to communities. The projected employment changes for Southern California and for the State overall represent changes of less than 1 percent. The greatest change would occur in Ventura County where a 3.4 percent increase in employment would occur during the peak year. However, this would be a short-term impact and would decline toward the end of project life.

Twenty four hectares (60 acres) of land onshore will be committed as a result of this sale. This is a long-term land use impact.

Both long and short-term impacts will affect the biological resources in the Bight. Deleterious long-term impacts upon seals, sea lions, and sea birds are anticipated. The exact extent of these impacts cannot be predicted but Sections III.C.1.d, e, and i; III.E.3 and 4; and V.A and C discuss potentials. Reduced populations of these species, (most are high level predators) could alter the population structure in surrounding marine communities. These changes are most likely to occur around San Miguel, Santa Rosa, Santa Cruz, and Anacapa Islands.

Tanner and Cortes Banks may experience long-term changes in the structure of their marine communities. Total number of organisms and diversity of species could decline. Changes in the other marine communities, ASBSs unique biological areas, Reserves, Refuges, and sensitive areas will be short term in nature.

Serious long term, worldwide impacts will only affect 1 of the 37 endangered species in this area - the gray whale (see Section III.C.1.f). Probable long-term, worldwide impacts on 13 species are anticipated to be minor (5 percent or less of the Population Injured, Destroyed or Displaced - PIDD) and to be negligible for the remaining species. Naturally short term (less than 10 years), localized (Southern California) impacts will be more serious. The Guadalupe fur seal could suffer severe impacts (more than 30 percent PIDD). Heavy impacts (16-30 PIDD) could affect the brown pelican and moderate impacts (6-15 percent PIDD) could affect 8 other species.

Impacts upon commercial fishing will be short term. OCS oil and gas operations will preclude fishing from some areas. The areas involved, however, represent less than 1 percent of the area in the Bight. Impacts upon sport fishing would also be short term.

There would also be an unknown amount of long-term degradation of the environment due to the continuous introduction of small amounts of oil and other substances, such as trace amounts of heavy metals from drilling muds, into the marine and coastal environment over the life of this proposed oil and gas operation. The anticipated Sale No. 48 chronic pollution is small compared to existing sewage outfall effluents and natural seeps. Evidence available at this time does not indicate any long-term adverse impacts on biological productivity as a result of the introduction of such substances into the environment; however, it is not possible at present to conclude that no adverse long-term impacts would result.

CHAPTER VII

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

A. Mineral Resources

Leasing of the tracts of proposed Oil and Gas Lease Sale No. 48 will, except in the event of very unusual circumstances, represent an irreversible and irretrievable commitment of any oil and gas resources that may be discovered by permitting development and extraction. In addition, an unknown quantity of associated minerals, (i.e., sulfur, brine salts, etc.) will be similarly committed.

B. Energy Resources

The energy resources committed will be those expended for exploration, development, production, transportation and refining, plus the amount expended due to processing losses. The efficiency of end-uses and of the indirect energy requirements is not considered here. End-use is not considered because of the impossibility of tying the production to a specific one; and indirect requirements are not considered because they will be primarily marginal (with an inadequate data base to calculate from) and because a large proportion of the indirect inputs are sunk costs.

These committed resources will then be contrasted with expected recoverable reserves to arrive at an estimate for the net energy gain resulting from this sale.

The most probable recoverable energy resources from this proposed sale are 4.88923×10^{15} Btus. Of this, 4.00257×10^{15} is oil and 8.8673×10^{14} is gas. The energy necessary for finding, producing, transporting, and processing the resources is known as ancillary energy. The part recovered of the amount of energy (reserves) in place is known as primary efficiency.

1. Oil: The primary efficiency does not apply to exploration and development. For production, it has historically been about 25 percent; the figures given above already include this factor. It may rise due to technological improvements such as better secondary and tertiary recovery methods. Some estimates are that it could reach 70 percent, but this factor will not be included here. The primary efficiency of transportation is 99 percent allowing 1 percent for leakage. This brings the net down to 3.96254×10^{15} Btus. The primary efficiency of refining has been calculated to range from 88 to 96 percent. Ninety-two percent will be used here, reducing net recovered energy to 3.64554×10^{15} Btus. What happens after the production leaves the refinery is beyond the scope of this statement; therefore, the above figures will represent the total energy recovered. As previously mentioned, end-use efficiencies will not be considered.

To get the net energy gain resulting from this sale, this figure has to be discounted by the ancillary requirements.

Figures for exploration, development and production are not available; but are sufficiently negligible so that an assumption can be made that they will be equal to 10 percent of the recovered energy. The production inputs would increase significantly if secondary and tertiary recovery methods were employed; but since the resulting improved recovery was not included, the added expenditures won't be either. Discounting the recovered petroleum based energy reduces it to 3.28099×10^{15} Btus.

For transportation, figures for five different modes have been calculated.

Since the consideration is the OCS, stopping at the refinery; it is assumed that all refineries are on the coast and that only pipelines and/or barges will be used. The pipeline parameter is 3.59×10^9 Btus per 10^{12} Btus piped 300 miles. For barges, the parameter is 25.2×10^9 Btus per 10^{12} Btus shipped 1,500 miles. This ES estimates 641 miles of pipeline will eventually result from this sale. It is estimated that 675 million barrels will be pipelined and 635 million barrels will be tankered or barged. These figures include the double handling of oil from Ventura County. This being the case, transportation will consume 3.5832×10^{12} Btus. Therefore, the net gain is now reduced to 3.64196×10^{15} Btus.

The ancillary energy consumed by the average refinery is 59.8×10^9 Btus per 10^{12} Btus refined. This figure was included in the percentages used earlier, so an additional calculation is not necessary.

2. Natural Gas: Furthermore, in the case of natural gas, an historical average of 3.4 percent has been lost through venting, flaring etc., on the OCS. This would reduce natural gas to a net gain of 8.56581×10^{14} Btus. Additionally, some natural gas is used (about 4 percent) to drive the compressors on a gas pipeline. This computes to 3.42632×10^{13} Btus, reducing the gas net to 8.22318×10^{14} Btus. Ancillary costs associated with exploration, development, and production are assumed to be included in the figure for petroleum. At this point, the total net gain for oil and gas is 4.46428×10^{15} Btus or 797 million equivalent barrels of oil using 5.598 million Btus per barrel and 1,031 Btus per cubic foot of natural gas.

As mentioned above, it is not feasible to try and quantify the energy required by indirect inputs into the subsequent development of the leases. However, estimates have been made as to the numbers of wells, pipelines, work boats, platforms and other facilities resulting from sale. The prime component of all these, and the primary indirect energy consumer, in the petroleum industry, is steel. Parameters have been developed to calculate how much steel will be required. Then, the energy consumed in making the steel will be applied and the total subtracted from the net gain to find a final surplus over consumption which should be reasonably complete; granting the accuracy of the estimates and assumptions used throughout this section.

The ES for proposed Sale No. 48 shows the following estimates of necessary facilities:

Wells	
--producing	701
--exploratory	86
Platforms	31
Miles of Pipeline	641
Support/Supply Facilities (onshore)	4
Floating Processors	3

For wells, assuming 787 with an average depth of 4,900 feet, and using a parameter of 11.25 tons steel per 1,000 feet, the total steel requirement will be 43,383 tons.

For the 641 miles of pipeline we assume a 16-inch diameter pipe, with a 0.438-inch wall. Approximately 200 tons of steel per mile is necessary for this size, resulting in requirements of 128,000 tons.

For 31 platforms, it is assumed 22 will be in an average water depth of 300 feet, 9 platforms in 1,200 feet. The parameters are respectively, 15,300 tons and 23,800 tons. The total steel is 550,800 tons.

The subtotal for the steel requirements for processors, support facilities, and storage facilities are not readily available. Therefore, for the sake of simplicity, it is assumed to be a total of 20,000 tons. This brings the grand total of direct steel requirements of this sale to 570,800 tons.

Applying a parameter of 7.86×10^7 Btus per ton to this, results in an energy input of 4.486×10^{12} Btus: the parameter is the energy content of alloy steel; it does include some indirect inputs such as mining, coking, transportation, etc. Furthermore, it is a national average of all steel; the specialized oil company goods require more processing, but individualized parameters are not available.

The net energy gain is now reduced to 4.45979×10^{15} Btus.

Reconverting this to standard hydrocarbon measures results in a net gain from this proposed sale of 796.7 million barrels to equivalent oil.

C. Land Resources

The proposed sale would require 24 ha (60 acres) of land for OCS related facilities required directly from the proposed sale and an undetermined amount of land to accommodate induced population growth.

While these uses may be long term, they are not generally considered irreversible. However, where new land uses result in the disruption or destruction of natural features or processes, such that return to the previous land use is not possible, an irreversible commitment of resources would occur. An example might be the conversion of a wetland to another use.

Due to the small amount of land required and the fact that land use controls are available in State and local coastal plans, etc., it is not believed that such an irreversible or irretrievable commitment of resources would result from this proposed sale.

D. Biological Resources

An irreversible or irretrievable commitment of fish and wildlife resources and their habitats could occur in the area of a massive oil spill, or if areas are frequently subjected to chronic low levels of oil pollution (in addition to present natural oil seepage). Note, however, that anticipated, chronic pollution is small compared to existing sewage effluents and natural seeps. It is anticipated that an area affected by such conditions will recover from a spill and that the natural flora and fauna would eventually reoccupy spill areas. Exceptions would be endemic and/or endangered species. Irreversible and irretrievable commitment of an endangered species may result if populations of a species are affected by spills, either initially or through food contamination, or by any other disruption or disturbance that may result from the proposed sale. Two resources of special concern and of possible irretrievable nature are the breeding colony of brown pelicans on Anacapa Island and the breeding colony of northern fur seals at Castle Rock and Adams Cove, San Miguel Island. Diving birds, such as grebes, loons, and sea ducks, are especially vulnerable. Any increase in chronic oil pollution above the "normal" natural seepage levels resulting from this proposed sale will cause increased mortalities of diving birds with a potential for population reductions.

The effects of oil pollution on marine mammals are unclear. An irreversible and irretrievable impact upon the most significant pinniped breeding area on the west coast, at San Miguel Island, must be considered as a possibility. An oil spill impacting the island may have the potential of irreversibly affecting breeding colonies of northern fur seals, northern elephant seals, California sea lions and harbor seals.

The effects of oil development on cetaceans are unknown but the potential reduction, especially of endangered species, exists. California gray whales are already beginning to migrate farther out to sea and additional disturbances resulting from the proposed sale may quite possibly cause these migrations to occur even farther offshore. It is impossible to predict probable impacts to gray whale populations but it must be acknowledged that irreversible and irretrievable effects on populations may result if these whales are forced from traditional migration routes. A winter spill in the San Pedro Bay area may result in irreversible impacts on pilot whales which seasonally form feeding concentrations in the shallow waters surrounding southeastern Santa Catalina Island.

E. Economic Resources

A decision to proceed with Sale No. 48 would result in the production of certain OCS-related goods and services. To the extent that resources would be drawn away from other uses, production of goods and services in other areas or of other types would possibly have to be forgone. Steel products, specialized manpower, and capital constitute required resources which may be especially scarce; and use of these resources to develop this proposed Southern California sale area could mean that other opportunities for their use might have to be forgone. While these resources may be reclaimed over time, their use as a result of this proposed sale would constitute an irreversible and irretrievable commitment of resources at a given point in time.

To the extent that unemployed resources are used, the employment of resources as a result of this proposed sale would not constitute a cost to society in the form of forgone opportunities.

F. Human Resources

Since 1968, when detailed reporting regulations were implemented by the U.S. Geological Survey, there have been 17,343 accidents directly associated with offshore drilling operations, 76 of these accidents resulting in death. This includes casualties through the first 6 months of 1975. It will be impossible to avoid all human casualties, but they have been minimized through measures already implemented which are continually updated to improve the safety of OCS operations. Fatalities and/or permanent impairment as a consequence of accidents and personnel error will result in an irreversible and irretrievable commitment of human resources. It is estimated that 2 to 3 deaths will occur during the life of the project and up to 943 injuries are projected. See Section III.A.4.c-1 for more details.

G. Cultural Resources

The shallower waters of the Outer Continental Shelf hold the greatest potential for cultural resources, particularly, aboriginal ones. This proposal will irretrievably commit large areas of shallow and relatively shallow waters of the OCS to a permanently disturbed condition. This adds to the already significantly large areas committed by previous leasing actions. Many OCS regions have been exposed to little or no disturbance in the past.

This proposal will place large and relatively permanent sources of magnetic anomalies on the outer continental shelves during the 20-40 years life of the proposed project, by the presence of platforms, pipelines, and cables which creates large magnetic gradients. Even after abandonment, remaining piling and well casing below the mudline will create large permanent magnetic anomalies and gradients beyond the capability of the magnetometer to record. This will complicate or even preclude search for antiquities and modern objects (ships, aircraft, etc.) alike because many anomalies may have to be investigated which are of no cultural value but which may emulate the signature of valuable objects or sites.

Similarly, bottom disturbance, objects, drill pipe, sundry debris, even work-boats create images in the sidescan sonar records that may have to be investigated.

Both on and offshore, mitigation of possible impact on a site or object by salvaging it, constitutes an irreversible and irretrievable loss of some of the information contained therein. As archeological research, salvage and analytical techniques improve, so does the amount and quality of information recoverable. Sites left undisturbed until future archeologists and technology are utilized, will yield much greater data rewards, generally speaking. Similarly, conservation work by which materials and artifacts are restored, improves steadily.

If, in the press of an oil spill emergency, sites are destroyed or damaged, during clean up work, a permanent loss of a nonrenewable resource occurs.

During the life of the proposal, the visual environment of some listed or eligible National Register sites may be affected. Though this is not serious, it is none-the-less irretrievable during this time period.

With the best of diligence in survey and analysis, some objects or sites may remain undetected and, thus, vulnerable to destruction or damage or rendered permanently undiscoverable. With less diligence, most or all of the cultural resources on particular tracts will remain undiscovered and vulnerable to loss, destruction, or damage.

Irretrievable or irreversible loss will occur if valuable antiquities are pilfered by unauthorized divers or "pot hunters". Use of unqualified archeological personnel and/or information disclosure can and has resulted in this kind of loss.

CHAPTER VIII

VIII. ALTERNATIVES TO THE PROPOSED ACTION

A. Hold the Sale in Modified Form

1. Establish 3/4 Mile Buffer Zones around State Oil Sanctuaries and to Protect Marine Bird and Mammal Rookeries: The State of California has established State oil sanctuaries along the mainland coast and around the Channel Islands (see Figure VIII.A.1-1 and 2). These sanctuaries are directly adjacent to some of the proposed OCS lease areas so that production of these OCS areas could result in the draining of the affected sanctuaries which would then require their development. See Sections III.C.9 and IV.A.6 for a detailed discussion of buffer zones.

As a means of protecting these sanctuaries from drainage, all OCS tracts bordering such sanctuaries could be withdrawn for a distance of 3/4 of a mile.

In addition, to protect important breeding areas (rookeries) of marine birds and mammals on Santa Barbara and Anacapa Islands and the eastern end of Santa Cruz Island, all tracts bordering these areas could be withdrawn for a distance of 3/4 of a mile (see Figure VIII.A.1-3).

To insure protection of these areas the following acreage would be removed from the proposed lease sale:

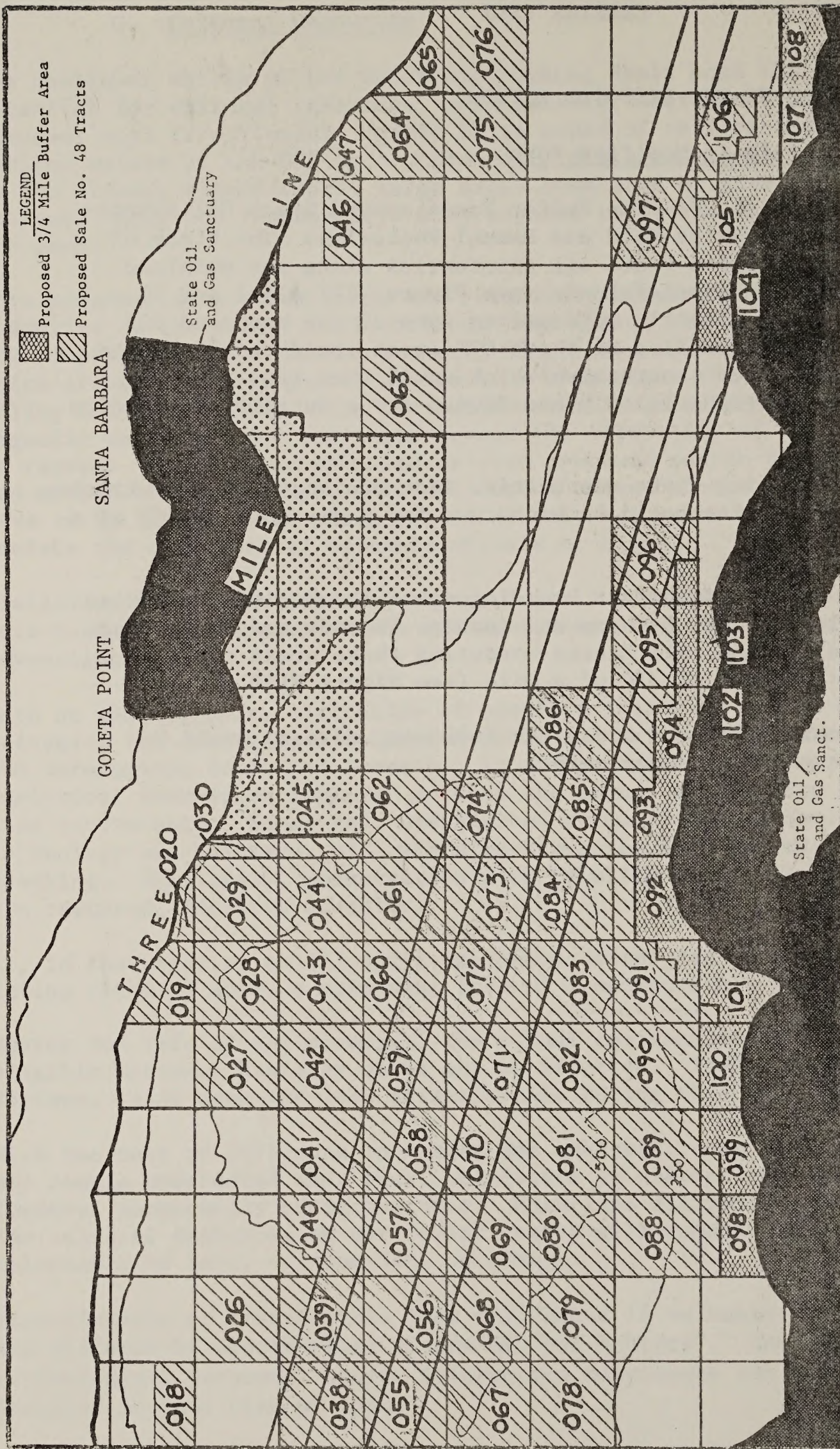


Figure VIII.A.1-1 Proposed Santa Barbara Channel 3/4 Mile Buffer Area.

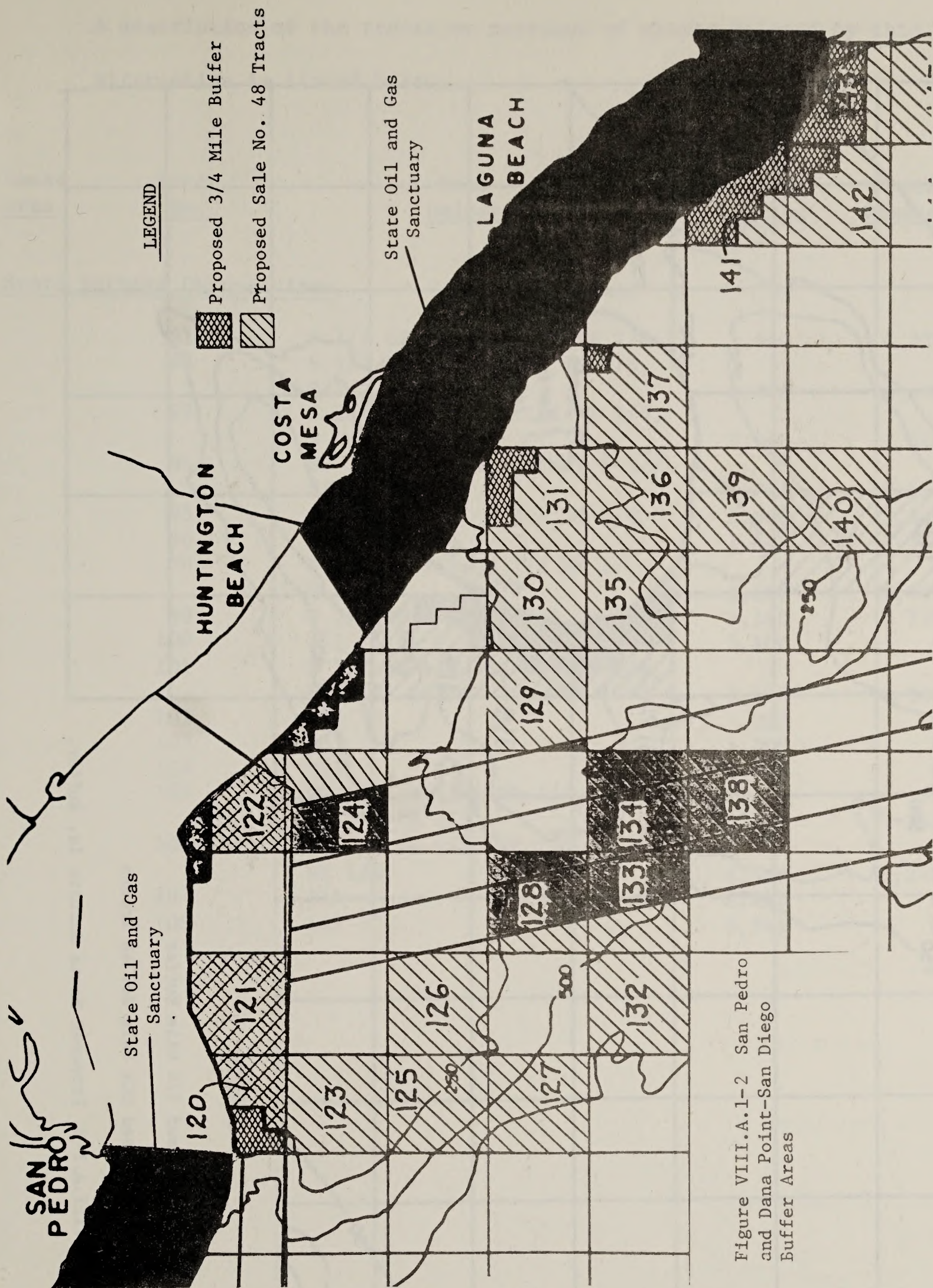
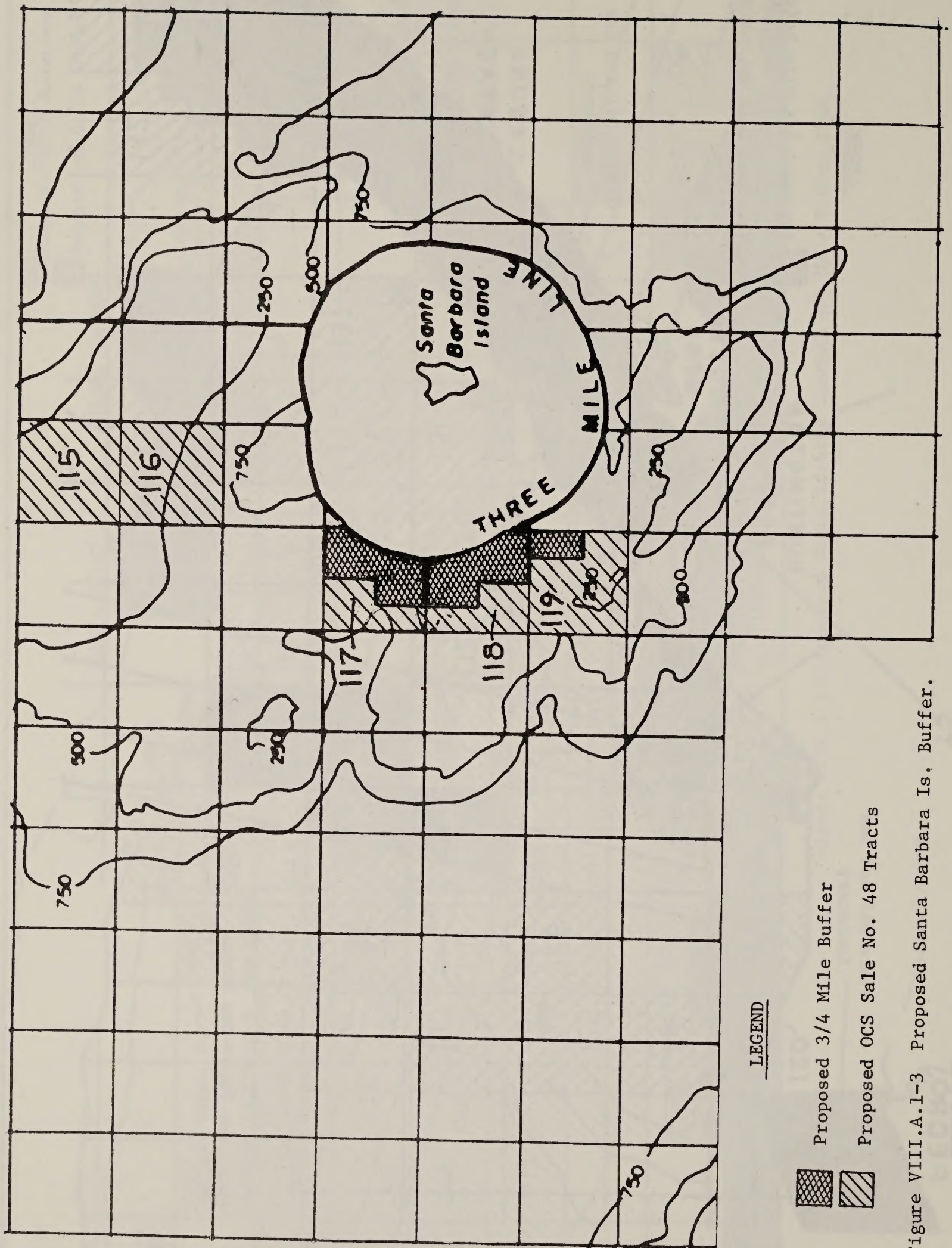


Figure VIII.A.1-2 San Pedro and Dana Point-San Diego Buffer Areas



LEGEND



-  Proposed 3/4 Mile Buffer
-  Proposed OCS Sale No. 48 Tracts

Figure VIII.A.1-3 Proposed Santa Barbara Is. Buffer.

A description of the tracts or portions of tracts deleted by this alternative is listed below:

<u>Lease Area</u>	<u>Tract No.</u>	<u>Area Deleted</u>	<u>Acreage Deleted</u>	<u>Acreage Remaining</u>
<u>Santa Barbara Channel Area</u>				
	91	S 1/2 SE 1/4, NE 1/4 SE 1/4	1,440	4,320
	92	S 1/2 NW 1/4, S 1/2 NE 1/4, S 1/2	2,860	1,440
	93	S 1/2 NW 1/4, SW 1/4 NE 1/4, S 1/2	3,098	1,440
	94	SW 1/4, NW 1/4 SE 1/4, S 1/2, SE 1/4	3,881	2,160
	95	S 1/2 SW 1/2, S 1/2 SE 1/4	1,800	3,960
	96	S 1/2 SW 1/4	1,440	4,320
	98	S 1/2 NW 1/4, S 1/2 NE 1/4, S 1/2	2,560	1,440
	99	S 1/2 NW 1/4, NE 1/4, S 1/2	3,180	720
	100	All	3,100	0
	101	S 1/2 NW 1/4, NE 1/4 NW 1/4, NE 1/4, S 1/2	3,140	360
	102	All	299	0
	103	All	1,508	0
	104	All	2,719	0
	105	NW 1/4, NW 1/4 NE 1/4, S 1/2 NE 1/4, S 1/2	3,978	360
	106	SW 1/4 NW 1/4, SW 1/4, S 1/2 SE 1/4	2,530	3,240
	107	All	2,210	0
	108	All	2,749	0

San Pedro Bay Area

120	N 1/2 SW 1/4, SW 1/4 SW 1/4	1,080	2,120
131	NE 1/4 NW 1/4, N 1/2 NE 1/4, SE 1/4 NE 1/4	2,820	2,880
137	NE 1/4 NE 1/4	1,440	4,320

Dana Point-San Diego Area

141	NW 1/4, NE 1/4, SE 1/4, NE 1/4 SW 1/4	3,840	360
142	N 1/2 NE 1/4, SE 1/4 NE 1/4	2,160	3,600
143	N 1/2, N 1/2 S 1/2	3,940	360

Santa Barbara Island

117	NE 1/4, SE 1/4, E 1/2 SW 1/4	2,880	720
118	E 1/2 NW 1/4, NE 1/4, SE 1/4	2,020	1,080
119	E 1/2 NE 1/4	1,800	3,960

Tract Area

	<u>Santa Barbara Channel</u>	<u>San Pedro</u>	<u>Dana Point- San Diego</u>	<u>Santa Barbara Island</u>
Hectares Deleted	17,192	1,724	4,023	2,711
Acreage Deleted	42,482	4,260	9,940	6,700
Percent of Total Acreage Deleted	7.8	3.7	6.8	27.9
Total Hectares Remaining	203,324	44,810	55,384	6,996
Total Acreage Remaining	502,211	110,680	136,800	17,280
BBL Oil Foregone (million)	23	3	2	3
Cu ft. Gas Foregone (billion)	23	2	3	2
BBL Oil Remaining (million)	277	76	28	7
Cu ft. Gas Remaining (billion)	277	61	42	6

The removal of this acreage from the sale would, of course, reduce the amount of recoverable resources available in the sale.

These buffer zones will protect State oil sanctuaries from drainage as a result of the proposed lease sale. In addition, the buffer zones around Santa Barbara, Anacapa and Santa Cruz Islands will reduce the possibility of ship traffic and human activity interfering with the normal behavior of the sea birds and marine mammals, and would also provide a greater time factor (see Special Stipulations Section IV) needed to set up containment equipment before an oil slick could reach the shore. In the event that an oil spill does reach shore at rookery sea bird and marine mammal populations' areas, the presence of spill cleanup crews and equipment could cause more damage than the spill itself because of the disturbance created. The presence of offshore structures near the rookeries would also attract sport fishermen and would provide a stopping-off point for other recreational boaters, thereby increasing the likelihood of disturbing these animals.

For a more detailed description of impacts upon marine bird and mammal populations without the proposed buffer zones see Section III.C.1.d and e.

2. Delete Santa Barbara Channel Area: The Santa Barbara Channel Area proposed for leasing consists of 108 tracts, numbered 001 through 108 and aggregating 220,437 hectares (544,693 acres). Estimated most probable undiscovered recoverable resources are 300 million barrels of oil and 300 billion cubic feet of gas. This is 49.8 percent of the total tracts proposed and 42 percent of the estimated oil resources. There are 69 tracts currently leased as a result of the 1968 sale.

Removal of all these tracts from the proposed sale would give up, temporarily, at least, the above estimated volumes of oil and gas, and the following installations and effluents estimated to result from the development of these leases: ten platforms, 402 km (250 miles) of pipeline, one offshore storage and treatment facility, 431,950 bbls of drill cuttings, 201,910 bbl/yr. of drilling mud, 469,718 kl (124,100,000 gallons) of sewage and 232,478 metric tons (256,263 tons) of solid waste. Table VIII A.2-1 lists the air pollution components which will not be produced on a peak emission day which includes one tanker being loaded offshore. The frequency of emissions from barge loading onshore will be decreased, but peak emissions will be unchanged.

Table VIII.A.2-1

SANTA BARBARA CHANNEL AIR POLLUTANTS

	<u>THC</u>	Air Pollutants (kg/hr)			<u>TSP</u>
		<u>NOx</u>	<u>CO</u>	<u>SO₂</u>	
	909	585	56	115	27
Percent of Santa Barbara and Ventura Counties:	23	14	<1	<5	<2

Note: THC - Total hydrocarbons
 NOx - nitrogen oxides
 CO - carbon monoxide
 SO₂ - sulfur dioxide
 TSP - total suspended particulates

Spills similarly, will not occur resulting from this proposal if there is no development. An estimated 3.1 spills greater than 1,000 bbl in size will thus be missed. The total from all sources in the Santa Barbara Channel is expected to be 9.63, thus deletion of this

area would save 32 percent of total spills expected. An estimated 28,727 bbl of oil will not be spilled over the 22 year life of the proposed project in spills of 50 bbl or more.

If an oil spill occurs, varying degrees of risk exist that the spill will reach certain shoreline segments from different launch points associated with this alternative. The segments and launch points are illustrated in Figures III.A.4.b.i-3 and 5. Tables VIII.A.2-2 and 3 list the launch points in this alternative posing a ten percent or greater risk of contacting various shoreline segments should a spill occur and which would be either removed or reduced in volume handled (risk) if this alternative were implemented.

Table VIII.A.2-2 shows the percent chance that a large oil spill starting at a particular launch point will reach the land segment indicated within 3 days, and includes the total change that the affected segments will be affected by a spill starting anywhere within the proposed leases. Table VIII.A.2-3 shows the same data for 60 days.

Removal of these tracts from the proposed offering will reduce or remove the risk from the preceding launch points. Tanker legs T9, 10, 11 and 4 going to San Francisco, will have a reduction in volume handled (risk) of 3 percent. While this reduction is a minor amount of that carried over the route, it amounts to 50 percent of the volume which would result from this proposal to be carried to San Francisco.

Tanker Legs T5, 6, 7 and 8 carry oil to Long Beach from points south. Use of this alternative would result in a reduction of 4 percent of the volume handled (risk).

For pipeline legs L7 and 8, all risk would disappear and for L6, a 93 percent reduction in volume handled (risk) would come about. Reference to tables VIII.A.2-2 and 3 illustrates which shoreline segments will have reduced or obviated risks as a result of this alternative.

Although not the most active area of proposed Sale No. 48, this alternative does pose a degree of risk from seismic shaking. Based on the very limited capabilities of a 41 year record, the annual risk of a 4.1 magnitude event is 10 percent and a 5.1 magnitude event is 1 percent per 1,000 km² (386 square miles). Selection of this alternative would not expose potentially vulnerable structures or wells to this natural risk.

Vessel traffic in and out of harbors like Santa Barbara and Port Hueneme will be reduced slightly over what it would be with the Sale

Table VIII.A.2-2

OIL SPILL TRAJECTORIES AND PERCENT CHANCE OF IMPACT* WITHIN 3 DAYS
ONCE SPILL HAS OCCURRED

(Also includes the percent chance of a spill from any source striking the segments)

Launch Point	26	29	42	S e g m e n t			48	49	50
				43	47	49			
**	11	2	3	2	6		10	37	12
P 1					18				
P 2					32		15		
P 3							29	12	
P 4								21	
P 5								36	
P 6							12	32	
P 7								64	
P 8		12							
P 9								14	37
L 6								45	11
L 7					22		15		
L 8							20		
T 5					12		14		
T 6									
T 7								37	11
T 8	14								
T 9			21	14					
T10									
T11									

*10% or greater

**Total percent chance of a large spill occurring and contacting the segments from any source within the proposed leases.

Table VIII.A.2-3

OIL SPILL TRAJECTORIES AND PERCENT CHANCE OF IMPACT* WITHIN 60 DAYS
ONCE SPILL HAS OCCURRED

(Also includes the percent chance of a spill from any source striking the segments)

Launch Point	26	27	28	29	38	39	S e g m e n t				49	50	53
							40	41	42	43			
** 1	22	31	15	3	38	3	2	2	5	3	53	23	22
P 2										14			
P 3										27			
P 4										38			
P 5										10			
P 6											24		
P 7											48		
P 8											53		
P 9											57		
L 6											76		
L 7											23	18	
L 8											28	43	
T 5											58	16	
T 6													
T 7													
T 8													
T 9													
T10													
T11													

*10% or greater
**Same note as in preceding table.

No. 48 proposal operative. For the peak year, 1982, work boats with the proposal are estimated to make 13 round trips per week.

With this alternative, there would be no risk that, despite political buffer zones, drainage would occur and thus precipitate state leasing in its sanctuaries.

Selection of this alternative would allow the most alleviation of potential adverse impacts of any lease area. Although this is mainly due to the large number of lease tracts and resource potential, the large number of biological resources and productivity of the area also are significantly involved.

The large areas of upwelling and resulting consistent primary productivity, particularly around Point Conception, north of all the Channel Islands and off the Santa Clara River Valley, provide important feeding areas for sea birds, marine mammals and large fish populations. These resources will have a far lessened chance of impact if this alternative is implemented.

Deleting this area will also decrease the amount of pollution potential on the nekton community.

The benthos of the Channel appears to reflect the relatively pristine waters of the area, particularly in comparison with the San Pedro Shelf area, and although no serious impacts are predicted, the omission of the area from the proposed sale will prevent an addition to slowly increasing pollution. Although there are few hard bottoms, large areas of kelp and rocky intertidal areas occur, particularly along the northern shores of the Channel Islands. Although we expect damage from single spills to be minor to kelp beds or moderate and temporary to rocky intertidal areas, impacts resulting from the predicted number of spills could be severe. This is also the area which apparently has the most endemic species which may become extinct from severe, frequent or prolonged spills.

Since San Miguel Island has the largest number of breeding birds in Southern California (other islands also are important bird nesting areas), and Anacapa Island and the small Scorpion Rock are the only remaining breeding area of the endangered brown pelican in Southern California, elimination of this area will reduce the possibility of disruption of pelican and other bird nesting sites and resulting mortalities from contamination of the feeding regions.

The potential danger to the endangered humpback whale, which congregate at the western portion of the Santa Barbara Channel, and gray whale, which use the Channel for migration routes, would be greatly mitigated by decreasing the probability of oil spills and possible obstacles to the migration path of the gray whale. Only small numbers of the

Guadalupe fur seal haul out on San Miguel Island, but it's susceptibility to oil spills places it in jeopardy of losing this foothold in Southern California.

Mitigation of possible impacts on the following estuaries of the Santa Barbara Channel area would occur following if this area were withdrawn: Goleta Slough, Carpinteria Marsh and Mugu Lagoon. These bays have little communication with the sea except Mugu Lagoon at certain times of the year and protection by booms is quite realistic. The probability of receiving oil can be somewhat reduced anyway. Prevention of a large spill reaching these bays will prevent widespread mortality which could be long lasting. These bays are nesting areas of the endangered light-footed clapper rail and Belding's savannah sparrow and feeding areas of the above as well as for the California least tern.

Other sensitive or unique areas which would have a reduced probability of being oiled if this area were withdrawn are the area of Special Biological Significance from Mugu Lagoon to Latigo Point, Point Conception, Burmah Beach, Goleta Rocks, Santa Clara River mouth, and the beach near the Standard Oil Pier at Carpinteria. The segments containing the areas are 28 to 31 and the chance of a spill occurring and striking them ranges from 1 to 15 percent.

The Santa Barbara Channel area has the only significant bottom trawl fishery in the proposed lease area and has a well developed purse sein fishery both of which would have a significantly reduced probability of becoming temporarily adversely impacted during an oil spill if this alternative were chosen.

Impacts which reduce boating enjoyment or participation would not occur. The hazard to navigation, both commercial and recreational, due to platforms would be reduced with this alternative. The concomitant utility of the structures for navigation and help for endangered vessels would not exist. The potential hazard to and from commercial shipping would not occur because additional tracts would not be in or near the shipping lanes of the Channel.

This alternative would also accommodate the marine sanctuary recommendations made by EPA, the California Coastal Commission, the Scenic Shoreline Preservation Conference, and Santa Barbara County. It also borders on the National Park Service's sanctuary recommendations for the area surrounding Anacapa Island.

Known and undiscovered cultural resources in the area would not be hazarded or made undiscoverable. Onshore cultural resources will not be subjected to as much risk from oil spills and cleanup activities as with this proposal being implemented.

Potential recreation losses in visitation of up to 2,607,000 and 6,900 boat-days would not occur. Further disruption of scenic values from 10 additional platforms and large and small oil spills will not occur.

A population increase ranging to 3,498 in 1986, and attributable to this proposal will not occur. This will also reduce land use change to urban by 708 hectares (1,749 acres).

In summary, the Santa Barbara Channel is presently exposed to a considerable risk of oil spills because of existing leases and existing, as well as proposed tanker traffic. Selection of this alternative will reduce the large spill risk by 3.1 spills from 9.63 to 6.53. Recreational losses will be reduced and some additional esthetic alteration of the seascape will not occur.

These tracts pose a very significant risk to the northern Channel Islands and to resources thereon. This alternative would obviate that risk. Numerous valuable biological resources are hazarded, including some endangered species, if this alternative is not selected. Gray whales use the Channel in their migration, while humpback whales gather in the western portions. Several valuable estuaries are located along the mainland. Birds heavily utilize these estuaries, the islands and surrounding water which are extremely productive. San Miguel Island is a rookery for very valuable marine mammal species. This alternative would reduce both the risk and the available estimated oil reserves significantly.

3. Delete Dana Point-San Diego Area: The Dana Point-San Diego area proposed for leasing consists of 26 tracts, numbered 141 through 166 and aggregating 59,386 hectares (146,740 acres). Estimated resources are 30 million barrels of oil and 45 billion cubic feet of gas. This equals 12 percent of the total tracts proposed for this sale and 4.2 percent of the estimated oil resources. It is 5.2 percent of the estimated gas resources. There are no current leases in this area.

Removal of all these tracts from the proposed sale would give up, temporarily, at least, the above estimated volumes of oil and gas and the following installations and effluents estimated to result from the development of these leases: three platforms, 24 km (15 miles) of pipeline, one offshore treating and storage facility, 48,290 bbls of drill cuttings, 20,840 bbls/yr. of drilling muds, 140,916 kl (37,230,000 gallons) of sewage and in San Diego County, 50,501 metric tons (55,667 tons) of solid waste. For Orange County, some 2,732 metric tons (3,011 tons) of additional solid waste would be created. Table VIII.A.3-1 lists air pollution components which would not be produced on a peak emission day which includes one barge being loaded offshore.

Table VIII.A.3-1

AIR POLLUTION EMISSIONS

	Air Pollutants (kg/hr)				
	<u>THC</u>	<u>NOx</u>	<u>CO</u>	<u>SO₂</u>	<u>TSP</u>
	213	106	14	7	5
Percent of San Diego County:	1.6	1.5	<1	<1	<1

Note: THC - Total hydrocarbons
 NOx - nitrogen oxides
 CO - carbon monoxide
 SO₂ - sulfur dioxide
 TSP - total suspended particulates

There are no crude oil production or transportation sources currently in the area, therefore, selection of this alternative would continue that situation. An estimated 0.17 spills of 1,000 bbl or larger

would not occur. An estimated 682 bbl of oil will not be lost in spills of 50 bbl or greater over the life of this proposal.

If an oil spill occurs, varying degrees of risk exist that the spill will reach certain shoreline segments from different launch points associated with this alternative. These segments and launch points are illustrated in Figures III.A.4.b.i-3 and 5. Tables VIII.A.3-2 and 3 list the launch points in this alternative posing a ten percent or greater risk of contacting various shoreline segments should a spill occur and which would remove the risk if this alternative were chosen. The actual risk of a spill both occurring anywhere and contacting the segments is much lower and is also shown in the tables.

Table VIII.A.3-2

PERCENT CHANCE*THAT AN OIL SPILL STARTING AT A
PARTICULAR LAUNCH POINT WILL REACH THE LAND SEGMENT
INDICATED WITHIN 3 DAYS

Launch Point	23	<u>S e g m e n t</u>	59
**	1		2½
P 20	28		
P 21	15		
P 23			19

*10 percent or greater

**Total percent chance of a spill occurring and striking the segments from any source from within the proposed leases.

Table VIII.A.3-3

PERCENT CHANCE* THAT AN OIL SPILL STARTING AT A
PARTICULAR LAUNCH POINT WILL REACH THE LAND SEGMENT
INDICATED WITHIN 60 DAYS

Launch Point	S e g m e n t						
	20	21	22	23	25	53	59
**	4	8	5	6	6	22	4
P19			14	24		18	
P20			18	45		11	
P21		18	18	35			
P22	16	22	20				15
P23	12	24	13				29
T25		25	20	20		22	
T26		10			10		

* 10 percent or greater

**Total percent chance of a spill occurring and striking the segments from any source from within the proposed leases.

Removal of these tracts from the proposed offering will remove the attendant risk in tanker legs T25 and T26. It will also remove most of the risk to the southern Orange County and the San Diego County coastline. Some risk from existing and proposed leases in San Pedro Bay will continue, however. The low volume of potential reserves predicted for these tracts, however, means that the overall risk of a spill occurring is low.

Although less well studied than the other areas, this coastal region is thought to be fairly productive and does have large dinoflagellate (plankton) blooms in the early spring which creates large surface concentrations of anchovy larvae, thus enhancing their possible susceptibility to oil slicks.

There are three tracts with hard bottoms which would have the impact of platform construction eliminated.

The many lagoons of the area support the same three endangered bird species as the other Southern California coastal bays (least tern, light-footed clapper rail and Beldings savannah sparrow), but only Tijana Lagoon is relatively unaltered. Except for San Diego Bay, all have narrow openings to the sea. Since Mission and San Diego Bays are important feeding areas for over wintering birds, elimination of this area would preclude nearly any possibility of them being oiled. The same can be said about the brown pelican breeding areas of Coronados Islands and Baja California, Mexico.

Since the migration route of the gray whale becomes concentrated fairly close to shore from San Diego to Newport Beach, deletion would also decrease the possibility of impacts in this area. The same can be said of the endangered leatherback and hawksbill sea

turtles and the loggerhead and Pacific Ridley turtles which are proposed additions to the endangered list. Although these species rarely occur in these waters, a small resident population of the latter three apparently occurs off San Diego. Turtles are very sensitive to oil pollution.

Potential impacts on unique environments of the coast between Dana Point and San Diego which would be mitigated are:

<u>Area</u>	<u>State Fish & Game Designation</u>	<u>Area of Special Biological Significance</u>
Dana Point	Marine Life Refuge	No
Doheny Beach	Marine Life Refuge	No
Point Loma	Ecological Reserve	No
San Diego-La Jolla	Ecological Reserve	Yes
San Diego	Marine Life Refuge	Yes
Heisler Park	Ecological Reserve	-

Several potential problems involving sport and commercial fishing would be alleviated if the San Diego area were deleted. Marlin and basking swordfish are important sport fish off San Diego and Oceanside, the latter an important commercial fish. Albacore and blue fin tuna are fished both commercially and for sport.

Most resources are not threatened sufficiently to quantify but this alternative would reduce the potential for some beach use loss, some boating loss and would be effective in precluding the esthetic changes which would occur by installing structures in a seascape now having none. The risk to submerged cultural resources would be lessened.

Population changes attributable to proposed Sale No. 48 range from an increase of 263 in 1985, to a decrease of 1,038 for Orange County in 2000. For San Diego, an increase ranging to 3,528 by 2000 is predicted. The Orange County decrease is caused by transference of labor force to other areas in response to OCS labor demands. This alternative will probably have little effect on Orange County's population but may result in no increase for San Diego County due to the proposal. This would reduce land use change by 642 hectares (1,586 acres).

4. Delete Santa Rosa Area

a. Foregone Development and Foregone Impact Sources:

This six tract block is approximately 24 km (15 miles) to the south of Santa Rosa Island. The block of tracts could contain 15 million barrels of oil or 2.1 percent of the projected value of the entire Sale No. 48, and 23 billion cubic feet of natural gas, or 2.7 percent of the entire sale. If development should take place, the projected 3 exploratory wells and 15 development wells drilled from one offshore platform and two subsea completion units could discharge 25,095 bbls of drill cuttings, 2,931,000 bbls of formation water and 10,815 bbls of drilling muds into the marine environment between 1980 and 2000. The offshore platform would discharge 2,000 gallons per day (730,000 gallons per year) of treated sewage into the nearby marine environment between the years 1984 to 2000.

Assuming a normal transportation scenario, oil and gas from the Santa Rosa tracts would be pipelined to Ventura along with the oil and gas from the Tanner-Cortes Bank and Santa Barbara Channel oil and gas. If the amount of oil and gas discovered did not justify the cost of building a pipeline system, the oil would be stored on site: 70 percent barged to Los Angeles, and 30 percent tankered to San Francisco.

b. Offshore Impacts That Will Be Eliminated If This Alternative Is Selected

i. Physical: The projected probability of 0.06 oil spills over 1,000 bbls during the 25-year anticipated life of the field will not occur if these tracts are deleted from the sale. Part of the tracts in this block also lie within a route that is frequently used as a shipping route. While not recognized as an official transit lane, no leasing of these tracts would lessen the possibility of an accident. There are no other significant physical impacts this group of tracts would have.

ii. Biological: The Santa Rosa tracts leased during Sale No. 35 have an estimated most probable value of 8 million barrels of oil. If all six proposed tracts for Sale No. 48 were leased, this would add another estimated 15 million barrels of oil. The only significant potential negative impact that leasing these tracts might have would be from an accident causing an oil spill. Based strictly on the oil spill trajectory analysis, this group of tracts is the only one that offers a significant (up to 19 percent) possibility of impacting San Nicolas Island and Begg Rock (11 percent); however, due to the comparatively low resource value, there is less than a 1 percent chance of a major spill occurring during the life of the field.

iii. There will be no significant change in social impacts such as recreational boating, fishing, sportfishing or esthetics from Sale No. 48 if this group of six tracts is removed from the sale.

c. Onshore Impacts That Will Be Eliminated If This Alternative Is Selected

i. Physical: If the present practice of transporting oil from the Santa Barbara area to Ventura for storage and then tankered to other locations is continued, and no new mitigating measures are used, 453,000 tons of hydrocarbons will not be released into the Ventura atmosphere between 1982 and the year 2000. Table VIII.A.4-1 lists air pollution components which would not be produced on a peak emissions day if this alternative were enacted.

Table VIII.A.4-1

AIR POLLUTION EMISSIONS

	Air Pollutants (kg/hr)				
	THC	NO _x	CO	SO ₂	TSP
Percent of	19	30	1	1	< 1
Santa Barbara and	< 1	< 1	< 1	< 1	< 1
Ventura Counties					

Note: THC - Total Hydrocarbons
 NO_x - nitrogen oxides
 CO - carbon monoxide
 SO₂ - sulfur dioxide
 TSP - total suspended particulates

ii. Biological: There will be no significant change in onshore biological impacts from Sale No. 48 if this group of six tracts is removed from the sale.

iii. Social: There will be no significant change in onshore social impacts from Sale No. 48 if this group of six tracts is removed from the sale.

d. Summary Conclusion: By deleting this area from the sale, 2.1 percent of the potential oil resource and 2.7 percent of the natural gas resource would be eliminated for the entire sale area. Other than the tankers and freighters that pass through the area, no significant impacts would be reduced by eliminating these tracts from Sale No. 48.

Since the entire Sale No. 48 area has been proposed as a marine sanctuary by one entity or another, the deletion of these tracts would partially satisfy the proposal of the State of California, Santa Barbara County and the Scenic shoreline preservation (see Section I.D.4 for marine sanctuary recommendations).

5. Delete San Pedro Area: The San Pedro Bay area proposed for leasing consists of 21 tracts numbered 120 through 140 and aggregating 46,953 hectares (116,020 acres). Estimated most probable undiscovered recoverable resources are 80 million barrels of oil and 64 billion cubic feet of gas. This is 9.7 percent of the total tracts proposed and 11.2 percent of the estimated oil resources. There are 12 tracts currently leased in this area as a result of Sale No. 35.

Removal of all these tracts from the proposed sale would give up, temporarily, at least, the above estimated volumes of oil and gas, and the following installations and effluents estimated to result from the development of these leases: three platforms, 103 km (64 miles) of pipeline, 119,960 bbls of drill cuttings, 51,655 bbl/yr. of drilling muds, 146,442 kl (38,690,000 gallons) of sewage and 244,586 metric tons (269,605 tons) of solid waste. Table VIII.A.5-1 lists the air pollution components which will not be produced on a peak emission day.

Table VIII.A.5-1

AIR POLLUTION EMISSIONS

	Air Pollutants (kg/hr)				
	THC	<u>NOx</u>	<u>CO</u>	<u>SO₂</u>	<u>TSP</u>
	99	156	6	6	2
Percent of South Coast Air Basin:	<1	<1	<1	<1	<1

Note: THC - Total hydrocarbons
 NOx - nitrogen oxides
 CO - carbon monoxide
 SO₂ - sulfur dioxide
 TSP - total suspended particulates

Spills, similarly, will not occur from this proposal if there is no development. An estimated 0.47 spills greater than 1,000 bbls in size will thus be missed. The total from all sources in the San Pedro area is expected to be 4.96, thus deletion of this area would reduce the expected number of spills by 9.5 percent. An estimated

1796 bbls will not be spilled over the 22 year life of the proposal in spills of 50 bbls or more.

If an oil spill occurs, varying degrees of risk exist that the spill will reach certain shoreline segments from different launch points associated with this alternative. These segments and launch points are illustrated in Figures III.A.4.b.i-3 and 5. Table VIII.A.5-2 lists the launch points in this alternative posing a ten percent or greater risk of contacting various shoreline segments should a spill occur and which would be either removed or reduced in volume handled (risk) if this alternative were implemented.

Table VIII.A.5-2

PERCENT CHANCE* THAT AN OIL SPILL STARTING AT A
PARTICULAR LAUNCH POINT WILL REACH THE LAND SEGMENT
INDICATED WITHIN 60 DAYS

Launch Point	S e g m e n t			
	21	23	25	53
**	8	6	6	22
P17			10	25
P18	11	10		25

*10 percent or greater

**Total percent chance of a spill occurring and striking the segments from any source from within the proposed leases.

None of these launch points pose a significant risk to land segments within a 3 day trajectory.

Removal of these tracts from the proposed offering will remove the risk from launch points P17 and P18. In addition, 1,200 bbls of oil spillage from pipelines would not occur.

This is apparently the most seismically active area of proposed Sale No. 48. Based on the very limited capabilities of a 41 year record, the annual risk of a 4.3 magnitude event is 10 percent and a 5.5 magnitude event is 1 percent per 1,000 km² (386 square miles). Selection of this alternative would not expose potentially vulnerable structures or wells to this risk.

The San Pedro area is also productive and has important dinoflagellate (plankton) blooms which are utilized by anchovy larvae. This to a large degree is why the populations of anchovy are so large in the area. More fish are caught commercially in the San Pedro area than any area of the Southern California Bight. Elimination of this area will decrease the probability of the possible springtime mortality to anchovy larvae and the reduction of fishing time caused

by oil spills to this already marginally profitable fishery. Although the expected number of spills in the San Pedro area is high, that expected from Sale No. 48 is low. Some problems to the purse sein fishermen may result from the many platforms in the area. Most of the potential spill damage will result from existing oil activity or pipelines. The elimination of this area will prevent the increase of more pollution into an already polluted area and the unknown consequences on the various habitats and communities resulting from it.

This alternative will mitigate the impact of constructing platforms on 5 tracts with hard bottoms, as well as create a slight decrease in the probability of oiling the relatively few kelp beds around Palos Verdes and the isolated rocky intertidal area just north of Dana Point.

Point Fermin is a location of heavy concentration of migrating birds, including the swimming or diving birds most susceptible to oil spills. These will have a reduced probability of becoming oiled as will the endangered gray whale, which migrates through the area, and the endangered inhabitants of Anaheim Bay (the least tern, light-footed clapper rail and Belding's savannah sparrow). Santa Catalina and San Clemente Islands have relatively little bird nesting activities, and the large concentration of pilot whales occurring to the southeast of San Clemente Island will have only a slightly decreased chance of becoming oiled as the result of this modification.

Potential impacts on the unique environments of the coast which would be mitigated are:

<u>Area</u>	<u>State Fish & Game Designation</u>	<u>Area of Special Biological Significance</u>
Abalone Cove	Ecological Reserve	No
Bolsa Chica Bay	Ecological Reserve	No
Heisler Park	Ecological Reserve	Yes
Newport Beach	Marine Life Refuge	Yes
Laguna Beach	Marine Life Refuge	No
Irvine Coast	Marine Life Refuge	Yes
Point Fermin	Marine Life Refuge	No
South Laguna Beach	Marine Life Refuge	No
Niguel	Marine Life Refuge	No
Dana Point	Marine Life Refuge	No
Doheny Beach	Marine Life Refuge	No

Vessel traffic in and out of Los Angeles-Long Beach Harbor would be reduced a small amount because work boats would not be needed to service activities on these tracts.

This is a very high use area for recreation and commercial vessels. Fewer platforms would cause a slight reduction in the collision risk to those vessels. A reduction of 9.5 percent of the risk of losing a 283,700 visitation and possibly up to 10 million visitors at beaches would occur under this alternative.

This alternative would also accommodate all of the California Coastal Commission's Marine Sanctuary recommendations and a portion of those proffered by San Diego CPO's and the Scenic Shoreline Preservation Conference.

A high potential for cultural resources exists on the tracts in this area and this alternative would create greater protection for them. Onshore cultural resources would not be as hazarded.

The avoidance of the loss of some 11,700 boat-days for one spill event would be gained through this alternative. Some minor amount of scenic disruption would be avoided although this would be of greater importance in some of the tracts off Costa Mesa and Laguna Beach where the offshore seascape is pristine.

A population increase ranging to 9,956 for Los Angeles County in 1986 will not occur, thus land use change amounting to 2,015 hectares (4978 acres) would not occur.

In summary, the risk of increasing risks and losses by approximately 52 percent over that created by Sale No. 35 leases will not occur under this alternative.

6. Delete Santa Barbara Island Area

a. Foregone Development and Foregone Impact Sources:

This five tract block is approximately 4.8 km (3 miles) to the west and 9.6 km (6 miles) to the northwest of Santa Barbara Island. This block contains the lowest projected oil and gas resource values of any area in this proposed sale, or an estimated 10,000,000 bbl of oil and 8 bcf of natural gas.

If development should take place, the projected 2 exploratory wells and 10 development wells drilled from 1 offshore platform and 1 subsea completion could discharge 16,730 bbl of drill cuttings, 1,944,000 bbl of formation water, and 7,210 bbl of drilling mud into the marine environment from 1980 to 2000. One offshore platform could discharge 2000 gal/day of secondary-treated sewage, or 730,000 gal of treated sewage/year from 1983 to 2000. Based on the most probable development scenario, peak production would be in 1986 with 1,123,000 bbl of oil and 898 MMcf of gas produced. Oil would be treated at the 1 projected offshore storage and loading facility and barged to the Los Angeles-Long Beach area to be treated at existing facilities. The barge trip could take 30 hours each way. A maximum of 4 boat trips/week and 1 helicopter trip/day would be required to service the offshore platform, offshore storage and treatment facility, 1 subsea completion, and 1 exploratory drilling rig.

b. Offshore Impacts That Will Be Eliminated If This Alternative Is Selected

i. Physical: The projected 0.06 greater than 1,000 bbl oil spills, and the 0.09, 50 to 1,000 bbl spills would not occur over the projected 25-year field life. Human disturbance in the area would be reduced by not conducting the exploratory, development and transportation activities described above. Water quality degradation caused by exploratory rig and platform discharges and oil spills would not occur. Although air quality degradation in the area would be reduced, the reduction would not be significant since the Santa Barbara Island area contains approximately 2 percent of the estimated most probable undiscovered recoverable oil and gas resources.

Solid waste tonnages generated by the development on the tracts or through oil spills would not occur. However, due to the low resource potential the reduction in tonnages would be insignificant.

Conflicts with ship traffic in San Pedro Channel and San Pedro Bay would be reduced. This reduction would be insignificant in comparison to the total traffic volume.

ii. Biological: Santa Barbara Island is part of the Channel Islands National Monument and the waters surrounding the island

out to one nautical mile or the 300-foot isobath, whichever is greater, have been declared an Area of Special Biological Significance by the State of California. Any impacts on the plankton, fish larvae, and fish populations, in the surface layer of the water column from potential oil spills and discharges from the drilling rig and platform would be eliminated. Water quality degradation and oil spills would not affect the rich kelp bed habitat with its complex associated marine community that rings the entire island. The rich, nearshore biological communities at Webster's reef on the west side of the island would not be impacted by spills or water quality degradation.

The most severe potential impacts from oil spills to the seabird and marine mammal rookeries on the island would be reduced. Santa Barbara Island is the third largest seabird rookery in the Southern California Bight. Oil spills from the proposed tracts could significantly impact the large population of Xantu's Murrelets in May and June when they disperse to sea with their chicks. Large numbers of seabirds use the nearshore waters of Santa Barbara Island as a foraging area. Xantu's Murrelets were observed foraging 5 to 11.5 km (3.1 to 7.1 miles) from the island in the spring. Santa Barbara Island is the fourth largest pinniped rookery in the Southern California Bight. If this alternative were selected, oil spill impacts on large numbers of elephant seal and sea lions feeding in the nearshore waters would be reduced.

iii. Social: There will be no impacts on recreational boating, fishing, sportdiving and esthetics around Santa Barbara Island from this proposed sale if these 5 tracts are withdrawn. About 10,000 people visit Santa Barbara Island and use the nearshore waters for recreational activities throughout the year.

c. Onshore Impacts That Will Be Eliminated If This Alternative Is Selected

i. Physical: No onshore facilities could be located on this National Monument whether or not this alternative is selected. Impacts from oil spills hitting the shore would be reduced as discussed above. Table VIII.A.6-1 lists air pollution components which would not be produced on a peak emission day which includes one barge being loaded offshore.

ii. Biological: Water quality degradation and oil spill impacts from this proposed sale on the rich rocky intertidal communities will be eliminated. BLM Baseline Studies have discovered intertidal sea cucumber and limpet species that occur only on Santa Barbara Island. Any oil spill hitting the intertidal zone from the proposed development could potentially severely impact these populations.

iii. Social: The projected onshore impacts from development of the proposed 5 tracts are low to insignificant. Any onshore impacts would be reduced by withdrawing this area, but the net reduction

compared to activity generated from the other proposed sale areas would be insignificant.

d. Summary Conclusions: By deleting this area from the sale, 1.4 percent of the potential oil resource and 1 percent of the potential natural gas resource would be eliminated for the entire sale area. Due to the low resource potential, the original projected impacts from oil spills and development activity were low for most biological and human resources and uses. The most significant impacts that would be eliminated would be the potential impacts from oils spills and water quality degradation on the large seabird and marine mammal populations that forage in the near-shore waters and on the rich biological communities in the intertidal and nearshore subtidal habitats of Santa Barbara Island.

Table VIII.A.6-1

AIR POLLUTION EMISSIONS

	Air Pollutants (kg/hr)				
	THC	NO _x	CO	SO ₂	TSP
Percent of	70	35	5	2	2
South Coast	< 1	< 1	< 1	< 1	< 1
Air Basin:					

Note: THC - Total hydrocarbons
 NO_x - nitrogen oxides
 CO - carbon monoxide
 SO₂ - sulfur dioxide
 TSP - total suspended particulates

7. Delete Tanner-Cortes Area: Deleting the proposed tracts on Tanner-Cortes Banks would have numerous effects. The discussion of these effects is divided into three segments: 1) tract development activities, 2) offshore impacts, and 3) onshore impacts.

a. Tract Development: Deleting these tracts, and assuming the most probable level of development had taken place, the following would not take place:

- (1) 19 exploratory wells drilled between 1979-1986
- (2) 279 development wells drilled between 1980-1990
- (3) 9 production platforms placed between 1982-1986
- (4) 28 subsea completions between 1983-1989
- (5) 252 miles of pipeline laid, probably in 1982
- (6) 410,535 bbl of drill cuttings discharged 1979-1989
- (7) 55,552,000 bbl of formation water discharged 1984-2000
- (8) 176,716 bbl of mud dumped 1979-1990
- (9) 68,040 cubic yards of sediment disturbed by pipeline burial 1982
- (10) 265,227,000 bbl of oil produced 1981-2000
- (11) 398,397,000,000 cubic feet of gas produced 1981-2000

b. Offshore Impacts: Oil spills, projected to occur as a result of Tanner and Cortes Bank development, naturally would not occur. The expected number of spills (1,000 bbl or more) between 1979 and 2000 is 1.14. The expected number for all the proposed tracts is 5.0 and the only proposed lease area with more expected spills is Santa Barbara with 3.10. The five other proposed lease areas, combined, only have an expected 0.76 spills. The high value for the Banks, of course, reflects the high resource potential in the area.

Tanner and Cortes Banks are considered unique biological areas for many reasons, including: the exceptional numbers of and size of individual species, diversity of species, community structure, importance as a feeding area for sea birds and pinnipeds. Biological impacts off OCS development in the banks are discussed in Section III.C.1.j. The organisms living in and utilizing the area could be seriously affected. Total numbers of many species could be significantly decreased. These species include: hydrocoral (*Allopora californica*), ringed top shells, abalone, rockfish, sheephead, giant sea bass, California sea lions, northern fur seals, elephant seals, gulls, terns, alcids, jaegers, sheerwaters and storm petrels.

Tanner Bank and Cortes Bank would probably continue to support all the species now present. However, it is very probable that the community structure would change and that many of the other factors contributing towards its uniqueness would be altered. Deletion of

these tracts would be very beneficial in perpetuating the unique biological nature of these banks. Deletion would also help mitigate potential impacts upon biological resources throughout the Bight, in particular, sea bird, seal and sea lion resources.

Social impacts of deleting this area would be to: 1) eliminate some jobs and 2) safeguard an area with a high potential for cultural resources. During the peak year, 1986, approximately 1,200 people would be employed to develop the banks. These numbers would decline to about 200 in 1991 and remain at this level until the end of the project.

c. Onshore Impacts: Deleting this area would have a minimum effect upon onshore impacts. Assuming a spill occurred, the probability of oil reaching any of the land segments between Point Reyes and Point Eugenia, within 3 days, is less than 0.5 percent. Within 10 days, the percentages remain the same for all segments except San Clemente Island - 4 percent. Even after 60 days, the percentages remain less than 0.5 percent except for San Nicolas Island (1 percent), Santa Barbara Island (1 percent), Santa Catalina Island (1 percent) and San Clemente Island (12 percent). The most probable method of transporting production to shore is by pipeline, which is expected to come ashore in Ventura. Impacts of laying the pipeline ashore are not expected to be significant so eliminating them is not of great importance.

Summary

Deleting these tracts will eliminate the second greatest potential source for oil spills within the proposed Sale No. 48 area. It will also eliminate the potential recovery of 280,000,000 bbl of oil and 419,000,000,000 cubic feet of natural gas and up to 1,200 jobs during the peak year of development.

Potentially serious impacts are anticipated on the biological resources of Tanner and Cortes Banks. The extent of these impacts would probably alter the banks to the point that they would no longer be considered unique, biologically. Deletion of this area would also be very significant in reducing the impacts upon sea bird, seal and sea lion resources of the Bight.

Table VIII.A.7-1 lists the air pollution components which will not be produced on peak emission days.

Table VIII.A.7-1

AIR POLLUTION EMISSIONS

	Air Pollutants (kg/hr)				
	THC	NO _x	CO	SO ₂	TSP
	524	751	62	69	24
Percent of South Coast Air Basin:	1.0	1.3	<1	<1	<1

Note: THC - Total hydrocarbons
 NO_x - nitrogen oxides
 CO - carbon monoxide
 SO₂ - sulfur dioxide
 TSP - total suspended particulates

8. Delete Santa Barbara Channel and Santa Rosa Area Tracts: The County of Santa Barbara has recommended the area encompassing the entire Santa Barbara Channel and the shelf south of the northern Channel Islands (San Miguel, Santa Rosa, Santa Cruz and Anacapa) for designation as a marine sanctuary under the Marine Protection, Research, and Sanctuaries Act of 1972 (P.L. 92-532, 86 Stat. 1061). This recommendation covers all tracts within the proposed Santa Barbara Channel and Santa Rosa lease areas (Figure VIII.A.8-1). There are 108 tracts covering 220,523 ha (544,693 acres) within the Santa Barbara Channel area and 6 tracts covering 13,992 ha (34,560 acres) within the Santa Rosa area of the proposed lease sale. This represents a total area of 234,515 ha (579,253 acres).

By deleting all tracts within both the Santa Barbara Channel and Santa Rosa areas of the proposed lease sale additional time will be gained which would allow a more thorough examination of Santa Barbara County's marine sanctuary recommendation and the fate of multiple resource use (e.g., oil and gas development) within such a designated area.

This alternative would result in reducing the area of the proposed lease sale by 51 percent. A summary of economic and resource data for the Santa Barbara Channel and Santa Rosa lease areas is shown in Table VIII.A.8-1. The air pollutants that would not be produced on a peak pollution day are shown in Table VIII.A.8-2.

The impacts resulting from oil and gas leasing within the Santa Barbara Channel and Santa Rosa areas have been discussed in Chapter III of this statement. Deletion of the tracts within these two areas would greatly mitigate the impacts of the proposed lease sale. The estimated cumulative number of large oil spills alone would be reduced by approximately 50 percent (see Section III.A) and the number of spills expected from proposed Sale No. 48 are reduced by 63 percent. Based upon the oil spill risk analysis (POCS Reference Paper No. VI) conducted for this proposed sale the northern Channel Islands would receive the greatest impacts from spills within the Santa Barbara Channel. These islands are unique areas, offering relatively undisturbed environments for a wide variety of marine and terrestrial animals relatively close to major population centers. Deletion of the Santa Barbara Channel and Santa Rosa lease areas from the proposed OCS Sale No. 48 would greatly mitigate the anticipated impacts of the proposed sale on these islands.

9. Delete San Pedro, San Diego-Dana Point: The Comprehensive Planning Organization (CPO) of the San Diego Region has recommended that both the San Pedro lease sale area and the Dana Point-San Diego lease sale area be deleted. CPO has also nominated the San Pedro and Dana Point-San Diego area for marine sanctuary designation under P.L. 92-532.

This proposed alternative would delete all tracts proposed for the lease sale in both the San Pedro area and Dana Point-San Diego area. Sections VIII.A.3 and VIII.A.5, respectively, provide a discussion on

Table VIII.A.8-2

AIR POLLUTION EMISSIONS

	Air Pollutants (kg/hr)				
	THC	NO _x	CO	SO ₂	TSP
	938	615	57	116	28
Percent of Ventura and Santa Barbara Counties:	24	15	1	6	2

Note: THC - Total hydrocarbons
 NO_x - nitrogen oxides
 CO - carbon monoxides
 SO₂ - sulfur dioxide
 TSP - total suspended particulates

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PACIFIC OUTER CONTINENTAL SHELF OFFICE
SOUTHERN CALIFORNIA OFFSHORE AREA:

STATE PLANE COORDINATE SYSTEM
 Bessel radii are based on the California (Lambert) Plane Coordinate System Zone 4, here or \pm origin 2,000,000 in 10^6 0, with a origin 1 00 in 32° 10'

The identification of the State Plane fields are based on the standard sequence in (North) starting at a origin, and the corrected sequence in (West) starting at the eastern meridian (Compare Sheet 20 N 42 W)

Each reader block in the State Plane System contains a minimum 5760 rows

[illegible]

Base compiled from U.S. Topographic Sheets Long Beach, and Santa Monica, 1750,000 series.
(Lambert Zones)

The approximate contact of a low β glaucophane series from the coast is shown that is ~ 100 m of the structural blocks starting up the hill and from the sediment.

Continuity in relation of selected intervals.

Date: February 6/5/78

15M 22W State Plane

4765 E 52 UT M

~~1997~~ Sale 48 EIS tracts

Existing federal leases

**GEOGRAPHIC/NUMERIC
TRACT IDENTIFICATION**

SANTA BARBARA CHL	SBC 001-100
SANTA ROSA	SR 109-114
SANTA BARBARA IS.	SBI 115-119
SAN PEDRO BAY	SPB 120-140
SANJA POINT-SAN DIEGO	SPSD 141-166
WILMER-COTE BLANK	T-CB 167-217

S.B. County
Marine Sanctuary
Recommendation

1480

Figure VIII. A.8-1

Table VIII.A.8-1

A SUMMARY OF RESOURCE DATA FOR THE SANTA BARBARA CHANNEL AND SANTA ROSA AREAS

	<u>Santa Barbara Channel</u>	<u>Santa Rosa Area</u>	<u>Combined</u>
Hectares Deleted	220,523	13,992	234,515
Acreage Deleted	554,693	34,560	579,253
Percent of Total Proposed Lease Area Deleted	48	3	51
BBL Oil Forgone (million)	300	15	315
Cu. Ft. Gas Forgone (billion)	300	23	323
Total Hectares Remaining in Proposed Lease Sale	0	0	227,759
Total Acreage Remaining in Proposed Lease Sale	0	0	562,565
BBL Oil Remaining (million)	0	0	400
Cu. Ft. Gas Remaining (billion)	0	0	537

the deletion of the Dana Point-San Diego area from the proposed lease sale. The following discussion describes the cumulative effect of deleting both the San Pedro area and the Dana Point-San Diego area from the proposed lease sale.

The San Pedro and Dana Point-San Diego area proposed for leasing consists of 47 tracts numbered 120 through 166 and aggregating 106, 399 hectares (262,760 acres). Estimated most probable undiscovered recoverable resources are 120 million barrels of oil and 109 billion cubic feet of gas. This is 21.7 percent of the total tracts proposed and 12 percent for this sale, 15.4 percent of the estimated oil resources, and 12 percent of the estimated gas resources. There are 12 tracts currently leased in the San Pedro area as a result of Sale No. 35. There are no current leases in the Dana Point-San Diego area.

Removal of all these tracts from the proposed sale would give up, temporarily, at least, the above estimated volumes of oil and gas and the following installations and effluents estimated to result from the development of these leases: six platforms, 221 km (79 miles) of pipeline, 168,358 kl (75,920,000 gallons) of sewage and 297,819 metric tons (328,283 tons) of solid waste. Table VIII.A.9-1 lists air pollution components which would not be produced on a peak emission day which includes one barge being loaded offshore of San Diego.

Table VIII.A.9-1

AIR POLLUTION EMISSIONS

	Air Pollutants (kg/hr)				
	<u>THC</u>	<u>NOx</u>	<u>CO</u>	<u>SO₂</u>	<u>TSP</u>
	312	260	20	13	7
Percent of South Coast Air Basin:	<1	<1	<1	<1	<1

Note: THC - Total hydrocarbons
 NOx - nitrogen oxides
 CO - carbon monoxide
 SO₂ - sulfur dioxide
 TSP - total suspended particulates

There are no crude oil production or transportation sources currently in the Dana Point-San Diego area, therefore, selection of this alterna-

tive would continue that situation. In the San Pedro area, spills from this proposal will not occur if there is on development. For both the San Pedro area and Dana Point-San Diego area, an estimated 0.64 spill greater than 1,000 bbl in size will not occur. Deletion of these areas would reduce the expected number of spills by approximately 10 percent. Additionally, an estimated 2,478 bbl of oil will not be lost in spills of 50 bbl or greater over the life of this proposal.

If an oil spill occurs, varying degrees of risk exist that the spill will reach certain shoreline segments from different launch points associated with this alternative. These segments and launch points are illustrated in Figures III.A.4.b.i-3 and 5. Tables VIII.A.9-2, 3 and 4 list the launch points in this alternative posing a 10 percent or greater risk of contacting various shoreline segments should a spill occur, and which would be either removed or reduced in volume handled (risk) if this alternative were implemented. The actual risk of a spill occurring anywhere and contacting the segments is much lower and is also shown in the tables.

Table VIII.A.9-2

PERCENT CHANCE* THAT AN OIL SPILL STARTING AT A
PARTICULAR LAUNCH POINT WITHIN THE SAN PEDRO AREA WILL REACH
THE LAND SEGMENT INDICATED WITHIN 60 DAYS

Launch Point	S e g m e n t			
	21	23	25	53
**	8	6	6	22
P17			10	25
P18	11	10		25

*10 percent or greater

**Total percent chance of a spill occurring and striking the segments from any source from within the proposed leases.

None of these launch points pose a significant risk to land segments within a 3 day trajectory.

Removal of San Pedro area tracts from the proposed offering will remove the risk from launch points P17 and P18. In addition, 1,200 bbls of oil spillage from pipelines would not occur in this area. Removal of Dana Point-San Diego tracts from the proposed offering will remove the attendant risk in tanker legs T25 and T26. It will also remove most of the risk to the southern Orange County and the San Diego County coastline. Some risk from existing leases in San Pedro Bay will continue, however. Additionally, this alternative would not expose potentially vulnerable structures or wells to seismic risk.

Table VIII.A.9-3

PERCENT CHANCE* THAT AN OIL SPILL STARTING AT A
PARTICULAR LAUNCH POINT WITHIN THE DANA POINT-SAN DIEGO AREA
WILL REACH THE LAND SEGMENT INDICATED WITHIN 3 DAYS

Launch Point	<u>S e g m e n t</u>	
	23	59
**	6	4
P 20	28	
P 21	15	
P 23		19

*10 percent or greater

**Total percent of a spill occurring and striking the segments from any source from within the proposed leases.

Table VIII.A.9-4

PERCENT CHANCE* THAT AN OIL SPILL STARTING AT A
PARTICULAR LAUNCH POINT WITHIN THE DANA POINT-SAN DIEGO AREA
WILL REACH THE LAND SEGMENT INDICATED WITHIN 60 DAYS

Launch Point	<u>S e g m e n t</u>					
	20	21	22	23	25	53
**	4	8	5	6	6	22
P19			14	24		18
P20			18	45		11
P21		18	18	35		
P22	16	22	20			
P23	12	24	13			
T25		25	20	20		
T26		10			10	

*10 percent or greater

**Total percent of a spill occurring and striking the segments from any source from within the proposed leases.

This coastal region is fairly productive and has important dinoflagellate (plankton) blooms which are utilized by anchovy larvae. Elimination of these areas will decrease the probability of the possible springtime mortality to anchovy larvae and the reduction of fishing time caused by an oil spill. Potential problems to the purse seine fishermen will be mitigated through the elimination of potential platforms in these areas.

The coastal area from San Pedro to San Diego are important areas to migrating birds. The endangered bird species along this section of the California coast are the least tern, light-footed clapper rail and Belding's savannah sparrow. Elimination of these areas would decrease the possibility of birds in the San Pedro area of becoming oiled and preclude nearly any chance of birds in the Dana Point-San Diego area from becoming oiled.

The deletion of these areas would also eliminate or reduce the possibility of impacts to the gray whale, which becomes concentrated fairly close to shore from San Diego to Newport Beach and the large concentration of pilot whales occurring to the southeast of San Clemente Island.

Potential impacts on the unique environments of the coast which would be mitigated are:

<u>Area</u>	<u>State Fish and Game Designation</u>	<u>Area of Special Biological Significance</u>
Abalone Cove	Ecological Reserve	No
Bolsa Chica Bay	Ecological Reserve	No
Heisler Park	Ecological Reserve	Yes
Newport Beach	Marine Life Refuge	Yes
Laguna Beach	Marine Life Refuge	No
Irvine Coast	Marine Life Refuge	Yes
Point Fermin	Marine Life Refuge	No
South Laguna Beach	Marine Life Refuge	No
Niguel	Marine Life Refuge	No
Dana Point	Marine Life Refuge	No
Doheny Beach	Marine Life Refuge	No
Point Loma	Ecological Reserve	No
San Diego-La Jolla	Ecological Reserve	Yes
San Diego	Marine Life Refuge	Yes
Heisler Park	Ecological Reserve	-

This alternative would reduce the potential for some beach use loss, some boating loss and would be effective in precluding the esthetic changes that would occur by installing structures in a seascape now having none. The risk to submerged cultural resources would be lessened.

A population change attributable to Sale No. 48 for Los Angeles, Orange, and San Diego Counties will not occur under this alternative. Expected population changes are an increase of 9,956 in the year 1986 for Los Angeles County, an increase of 263 in the year 1985 to a decrease in the year 2000 for Orange County, and an increase of 3,528 by the year 2000 in San Diego County. The land use change amounting to 2,657 hectares (6,564 acres) would not occur.

In summary, the risk of increasing risks and losses by approximately 52 percent over that created by Sale No. 35 leases in the San Pedro area will not occur under this alternative and the risks in the Dana Point-San Diego area from the proposed lease sale will not occur under this alternative.

10. Delete Santa Barbara Channel, Santa Rosa, San Pedro and Dana Point-San Diego Areas: This alternative combines the areas recommended for marine sanctuary designation under the Marine Protection, Research, and Sanctuaries Act of 1972 (P.L. 92-532) by the County of Santa Barbara and the Comprehensive Planning Organization of the San Diego Region (see Section VIII.8 and 9).

The alternative will delete 161 tracts from the proposed lease sale covering a combined area of 340,896 ha (842,013 acres) or 60 percent of the total proposed lease area. These areas have a combined estimate of 425 million bbl of oil and 432 billion cubic feet of gas which will be foregone if this alternative is followed. Those tracts remaining in the proposed lease sale are in the Santa Barbara Island and Tanner-Cortes Bank areas and encompass 121,378 ha (299,805 acres) with estimated resource potential of 290 million bbl of oil and 428 billion cubic feet of gas.

Almost all impacts upon the Santa Barbara Channel and Santa Rosa areas will be mitigated by this alternative with the exception of impacts due to pipelines along the Santa Rosa-Cortes Ridge through the Channel. In addition, tankering will still be necessary from the Santa Barbara Island area. All impacts upon the San Pedro and Dana Point-San Diego areas due to the proposed lease of tracts in these areas will be eliminated. For additional discussions on changes in impacts due to this alternative, see Sections VIII.8, and 9 and Chapter III.

11. Delete Areas in Traffic Separation Schemes and Proposed Shipping Safety Fairways

a. Delete Areas in Traffic Separation Schemes: To increase vessel traffic safety in the Santa Barbara Channel, a traffic separation scheme is in effect in the Channel. A traffic separation scheme is also in effect in the San Pedro Bay and the Santa Catalina Channel. To delete the areas in these two separation schemes would require the deletion of all or part of the following tracts:

Tract No.	Deleted Hectares	Hectares Remaining	Deleted Acreage	Remaining Acres
SBC-17	1,238	1,093	3,060	2,700
24	2,331	0	5,760	0
25	2,331	0	5,760	0
33	583	1,748	1,440	4,320
34	1,238	1,093	3,060	2,700
35	1,930	401	4,770	900
36	2,331	0	5,760	0
37	2,331	0	5,760	0
38	2,258	73	5,580	180
39	1,675	656	4,140	1,620
40	1,020	1,311	2,520	3,240
41	291	2,040	720	5,040
53	328	2,003	810	4,950
54	1,020	1,311	2,520	3,240
55	1,675	656	4,140	1,620
56	2,287	44	5,652	108
57	2,331	0	5,760	0
58	2,331	0	5,760	0
59	1,967	364	4,860	900
60	1,238	1,093	3,060	2,700
61	568	1,763	1,404	4,356
62	29	2,302	72	5,688
68	146	2,185	360	5,400
69	801	1,530	1,980	3,780
70	1,530	801	3,780	1,980
71	2,185	146	5,400	360
72	2,331	0	5,760	0
73	2,331	0	5,760	0
74	2,156	175	5,328	432
82	44	2,287	108	5,652
83	583	1,748	1,440	4,320
84	1,311	1,020	3,240	2,520
85	2,040	291	5,040	720
86	2,331	0	5,760	0
94	1,805	437	4,461	1,080
95	1,166	1,166	2,880	2,880
96	1,894	437	4,680	1,080

Tract No.	Deleted Hectares	Hectares Remaining	Deleted Acreage	Remaining Acres
SBC- 97	2,010	321	4,968	792
104	1,100	0	2,719	0
105	1,756	0	4,338	0
106	2,331	0	5,760	0
107	894	0	2,210	0
108	1,112	0	2,749	0
SBC Total	65,191	155,305	161,089	383,604
SPB-120 ^a	1,295	0	3,200	0
121 ^a	2,064	0	5,100	0
122 ^a	1,659	109	4,100	270
123 ^a	126	2,206	311	5,449
124	1,457	874	3,600	2,160
126	29	2,302	72	5,688
128	1,821	510	4,500	1,260
129	73	2,258	180	5,580
133	1,384	947	3,420	2,340
134	2,331	0	5,760	0
138	2,331	0	5,760	0
SPB Total	14,570	32,396	36,003	80,017

^aTract in San Pedro Precautionary Zone.

The hectares deleted would total 65,191 (161,089 acres) of the Santa Barbara Channel area, or 29.6 percent. This could mean that 89 million barrels of recoverable oil and 89 billion cubic feet of recoverable gas would not be developed in the Santa Barbara Channel area. The hectares deleted in the San Pedro area would total 14,570 (36,003 acres) or 31 percent. The recoverable oil and gas foregone could total 25 million barrels of oil and 20 billion cubic feet of gas. The deletion of these areas would increase the safety of ship traffic in the Santa Barbara Channel and the San Pedro area.

Current Coast Guard (CG) and Corps of Engineers (COE) policies concerning petroleum-related structures located inside the Traffic Separation Scheme (TSS) for the Santa Barbara Channel TSS and Gulf of Santa Catalina TSS are different. In the Santa Barbara Channel TSS, temporary and permanent structures are not permitted inside the traffic lanes but are permitted on a case-by-case basis inside the separation zone. In the Gulf of Santa Catalina TSS, temporary structures are permitted inside the TSS in accordance to the drilling guideline (Section III.A.3), and permanent structures

are only permitted inside the separation zone providing the traffic lanes are designated as a safety fairway. This alternative would delete all areas and eliminate all structures inside the TSS. Therefore, this alternative would only increase the safety for shipping navigation to some degree since existing regulations restrict development activities in TSS's (see Figure VIII.A.11-1).

Economically, the impact of this alternative could reduce the number of jobs created by approximately 17 percent, or 603 jobs during the peak year of employment, 1985. The wages foregone would be about \$12 million for that same year and approximately \$94 million for the duration of the development.

The impact on the environment would be reduced by fewer wells being drilled, fewer platforms being placed and the reduced probabilities of oil spills. The expected number of oil spills in the Santa Barbara Channel area would be reduced from 3.1 spills of 1,000 barrels or more to 2.6 spills of that size for the 1979-2000 period. Fewer spills would mean a reduction of the negative impact on birds and mammals, as discussed in Section III.C.1.

Esthetically, the impact of this alternative would be significant since Tracts 104, 105, 106, 107, and 108 would be deleted. Those tracts are within view of Anacapa Island, which is part of the Channel Islands National Monument. An undisturbed natural view is important for the aesthetic appeal of a national park or monument. This alternative would ensure that proposed Sale No. 48 would not disrupt the aesthetic quality of the National Monument (see Figure VIII.A.11-2).

Since the Channel Islands National Monument has been nominated as a Class 1 Air Quality area by the National Park Service, this alternative would greatly enhance the probability that proposed OCS Sale No. 48 would not violate the Class 1 standard. Class 1 areas are discussed in Section III.D.

In conclusion, the deletion of areas in the traffic separation schemes in the Santa Barbara Channel and San Pedro area would cause the following impacts: reduction in the recoverable oil by 114 million barrels of oil and 109 billion cubic feet of gas; increase safety of ship traffics in the traffic lanes; reduction in employment by 17 percent; reduction in expected number of oil spills in Santa Barbara Channel by 0.5 spills; reduction in disrupting the aesthetic view of Anacapa Islands; and reduction in pollution of air near the Channel Island National Monument.

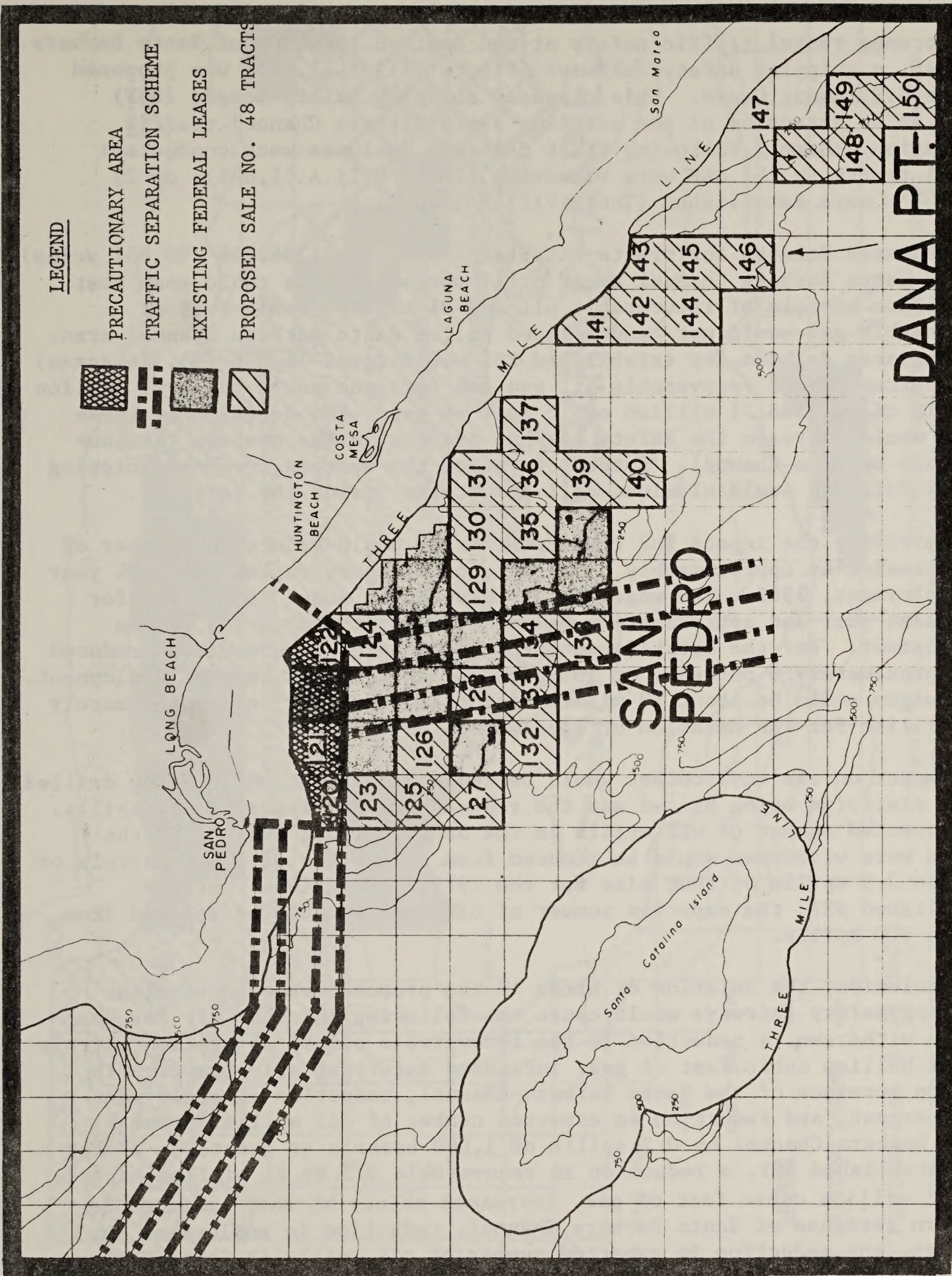


Figure VIII.A.11-2 San Pedro TSS

b. Delete Areas in Proposed Shipping Safety Fairways:

To increase vessel traffic safety at the western terminus of Santa Barbara Channel, a shipping safety fairways (Figure VIII.A.11.b-1) was proposed by the U.S. Coast Guard. This proposed shipping safety scheme (SSF) would be an extension of the existing Santa Barbara Channel traffic separation scheme. Following tract deletion analyses were conducted: 1) all tracts in the SSF were withdrawn (Table VIII.A.11.b-1); or 2) the SSF's were established (Table VIII.A.11.b-2).

The hectares deleted for tracts withdrawn would total 36,766 (90,851 acres) of the Santa Barbara Channel area, or 17 percent. This could mean that 51 million barrels of recoverable oil and 51 billion cubic feet of recoverable gas would not be developed in the Santa Barbara Channel area. The hectares deleted for established SSF would total 14,376 (35,526 acres) or 7 percent. The recoverable oil and gas foregone could total 21 million barrels of oil and 21 million cubic feet of gas. The deletion of these areas would increase the safety of ship traffic in the western terminus of Santa Barbara Channel. Establishment of the western terminus shipping safety fairways would eliminate all structures inside the fairways.

Economically, the impact for tracts withdrawn could reduce the number of jobs created by approximately 8 percent, or 271 jobs during the peak year of employment, 1985. The wages foregone would be about \$5 million for that same year and approximately \$42 million for the duration of the development. For the established SSF the number of jobs would be reduced by approximately 3 percent, or 109 jobs during the peak year of employment. Lost wages would be about \$2 million for that same year and approximately \$17 million for the duration of development.

The impact on the environment would be reduced by fewer wells being drilled, fewer platforms being placed and the reduced probabilities of oil spills. The expected number of oil spills in the Santa Barbara Channel if the tracts were withdrawn would be reduced from 3.1 spills of 1,000 barrels or more to 2.9 spills of that size for the 1979-2000 period. For the established SSF, the expected number of oil spills would be reduced from 3.1 to 3.0 spills.

In conclusion, the deletion of areas in the proposed western terminus shipping safety fairways would cause the following impacts: 1) For the tracts withdrawn, a reduction in the recoverable oil by 51 million barrels and 51 billion cubic feet of gas, increased safety of ship traffics in western terminus of the Santa Barbara Channel, reduction in employment by 8 percent, and reduction in expected number of oil spills in the Santa Barbara Channel by 0.2 spills of 1,000 barrels or greater; 2) for the established SSF, a reduction in recoverable oil by 21 million barrels and 21 million cubic feet of gas, increased safety of ship traffics in western terminus of Santa Barbara Channel, reduction in employment by 3 percent, and reduction in expected number of oil spills in Santa Barbara Channel by 0.1 spills of 1,000 barrels or greater.

Table VIII.A.11.b-1

TRACTS WITHDRAWN

Tract No.		Deleted Hectares	Deleted Acres
SBC	1	1,801	4,451
	7	2,331	5,760
	8	2,331	5,760
	9	2,331	5,760
	10	2,331	5,760
	13	2,331	5,760
	14	2,331	5,760
	15	2,331	5,760
	16	2,331	5,760
	17	2,331	5,760
	21	2,331	5,760
	22	2,331	5,760
	23	2,331	5,760
	24	2,331	5,760
	32	2,331	5,760
	33	2,331	5,760
SBC Total		36,766	90,851

Table VIII.A.11.b-2

ESTABLISHED SSF

Tract No.		Deleted Hectares	Hectares Remaining	Deleted Acreage	Remaining Acres
SBC -	1	301	1,500	743	3,708
	7	1,166	1,165	2,880	2,880
	8	1,305	1,026	3,226	2,534
	9	1,375	956	3,398	2,362
	10	364	1,967	899	4,861
	13	1,305	1,026	3,226	2,534
	14	1,096	1,235	2,707	3,053
	15	1,026	1,305	2,534	3,226
	16	1,305	1,026	3,226	2,534
	17	1,026	1,305	2,534	3,226
	21	886	1,445	2,189	3,571
	22	1,305	1,026	3,226	2,534
	23	728	1,603	1,800	3,960
	24	606	1,725	1,498	4,262
	32	72	2,259	179	5,581
	33	510	1,821	1,261	4,499
SBC Total		14,376	22,390	35,526	55,325

12 . Delete Tracts 120, 121 and That Portion of Tract 122 That Is In the San Pedro Precautionary Area and Prohibit the Placement of Permanent Surface Structures In These Portions of Tracts 123 and 124 That Are In the Precautionary Area: The U.S. Eleventh Coast Guard District has recommended deletion of areas located inside the Traffic Separation Scheme (TSS) Precautionary Area at the entrances to Los Angeles, Long Beach, and Anaheim Bay Harbors. The Coast Guard is concerned that development in these areas would occur in the worst possible locations, inside the Precautionary Area, and would present a navigation hazard to shipping (see Figure VIII.A.4-1).

Current Coast Guard and Corps of Engineers policies, concerning petroleum-related structures inside the Precautionary Area, would permit temporary structures in accordance to the drilling guideline (Section III.A.3.1) but would not permit permanent structures. This alternative would eliminate all permanent structures inside the Precautionary Area. Therefore, this alternative should reduce the navigation hazard to shipping within the Precautionary Area.

To delete these areas would withdraw from Sale No. 48 12,400 acres (Section VIII.A.11), representing approximately 10.7 percent of proposed Sale No. 48 acres in the San Pedro Bay tracts. Withdrawal of 12,400 acres could indicate an estimated recoverable petroleum loss of 8.6 million barrels of oil and 7 billion cubic feet of gas.

The economic impact resulting from this alternative could reduce the work force and cause loss of wages. For the estimated peak employment year, 1985, there could be a reduction of 447 jobs, causing a loss of 9 million dollars in wages. For the entire development program, there could be a wage loss of approximately 61 million dollars.

The environmental impacts resulting from this alternative would eliminate the petroleum activities in the Precautionary Area and would reduce the probabilities of having oil spills. The expected numbers of oil spills of 1,000 barrels or more in the San Pedro Bay area between 1979 and 2000 would be reduced from 0.47 to 0.42. Reduction in the expected number of oil spills would have a corresponding reduction in negative impacts on birds and mammals (Section III.C.1).

The environmental impact difference between the proposal and the proposal with this alternative is insignificant. The advantage of this alternative is the increased vessel safety in the San Pedro Area.

LONG
BEACH

LEGEND



PRECAUTIONARY AREA



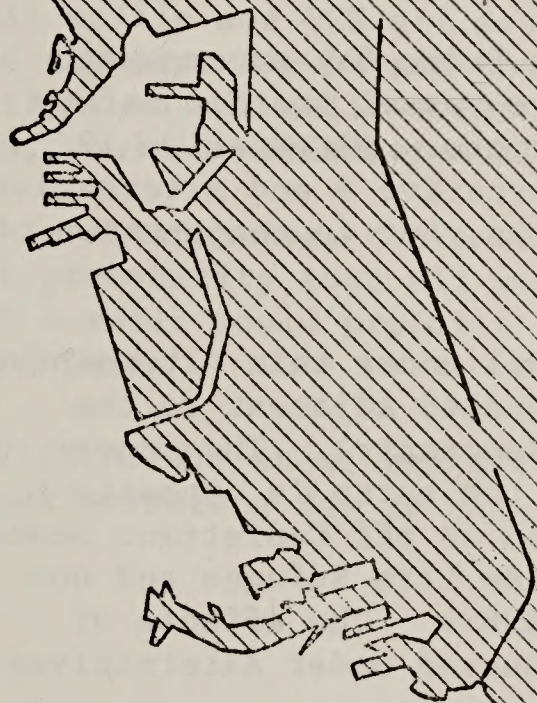
NO PERMANENT SURFACE
STRUCTURES



EXISTING FEDERAL LEASES



PROPOSED SALE NO. 48
TRACTS



0293
SHELL

121

120

122

0295
TEXACO

123

0296
STANDARD

124

0298
SHELL

Figure VIII.A.12-1 San
Pedro Bay Precautionary
Area

13 Coastal Commission/Lands Commission Alternative: The State of California's Coastal Commission and Lands Commission have suggested the following alternative to the proposed action. Delete the following numbered tracts in the following areas: numbers 75, 91-96 and 98-108 in the Santa Barbara Channel, 115-119 around Santa Barbara Island, 120-122 in San Pedro Bay, and 131, 137 and 141-143 off Orange County. The recommended deletions of all these tracts, in various combinations, has been discussed in the preceeding Alternatives. The detail presented in these previous discussions will not be repeated.

The largest number of tracts proposed for withdrawal by this Alternative are the 17 located in the Santa Barbara Channel. Tract 75 was recommended because it is the site of a proposed offshore LNG facility. The remaining tracts 91-96 and 98-108 are all located adjacent to the 3-mile line opposite Santa Rosa, Santa Cruz and Anacapa Islands. Removal of these tracts would create a larger buffer zone opposite the sensitive ASBSs which include all three of these islands and the surrounding waters. Removal of 8 of these tracts (94-96, 104-108) would also improve vessel safety in the traffic separation scheme. Withdrawal of all 17 of these tracts (30,401 hectares, 75,112 acres) is discussed in Alternatives VIII.A.1, 2, 8, 10, and 11. We do not feel it is necessary to reiterate this material. Please refer to the appropriate sections.

The deletion of tracts 115-119 around Santa Barbara Island is covered as Alternative VIII.A.6. The areal extent is 9705 hectares (23,980 acres). The concern in this area is related to the biological importance of this island and the adjacent waters. The State has designated the island and the surrounding waters out to 1 nautical mile (or the 300-foot isobath, whichever is greater) as an ASBS. Because of its location most of the anticipated impacts are from the immediately adjacent 5 tracts. Their withdrawal would eliminate these impacts.

The proposed deletion of tracts 120-122 in San Pedro Bay encompasses 5017 hectares (12,4000 acres) and would improve vessel traffic safety for ships using the Los Angeles-Long Beach Harbors. Alternative 12 specifically discusses this Alternative. Alternative 9 and Alternative 11 also discuss the withdrawal of these 3 tracts, but in conjunction with other tracts as well.

The last group of tracts proposed for withdrawal under this Alternative are numbers 131, 137 and 141-143. They are located adjacent to the State 3-mile line (and the State Oil and Gas Sanctuary). They cover 10,409 hectares (25,720 acres). Tract 131 on the north is opposite Newport Beach while the southern most tract 143 is off Capistrano Beach. Within this section of coast, there are 7 Marine Life Refuges and one Ecological Reserve. Three of these are also ASBSs. The effects of withdrawing these tracts has already been discussed under Alternatives VIII.A.1, 2, 8, 10, and 11.

14 . Delete Tracts North of San Miguel Island

a. Foregone Development and Forgone Impact Sources: This alternative considers the impacts of removing 34 tracts north of San Miguel Island (Tracts SBC 1-17, 21-25, 31-36, and 48-53) from the proposed Lease Sale No. 48. These tracts cover a total area of about 73,559 hectares (181,765 acres). Implementation of this alternative would not affect the proposed oil and gas development in the remainder of the Santa Barbara Channel nor the existing Federal leased areas.

The estimated oil and gas resources from this area are about 90 million barrels and 90 billion cubic feet, respectively. Initiation of this alternative would mean these resources could not be recovered at this time.

In Table VIII.A.6-1 the estimated amount of various pollutants discharged and the number of structures built as a result of the proposed oil and gas development in the Santa Barbara Channel with and without this alternative are compared.

b. Offshore Impacts That Will Be Eliminated if This Alternative is Selected

i. Physical: Statistically this alternative would result in 0.16 fewer spills of 1000 barrels or greater in the Santa Barbara Channel from production phase accidents, 0.21 fewer spills from pipeline accidents and 0.36 fewer spills from tankering accidents. A total reduction of 0.73 spills, i.e., almost 1 spill, of 1000 barrels or greater in the Santa Barbara Channel. This would be a 23 percent reduction in the number of potential Channel spills. Removal of these tracts from the lease sale would reduce the risk to the fauna of San Miguel Island from oil spills and OCS oil development activities. Launch point P1, P2, and pipeline Leg L7 and the respective probabilities (27, 38, and 29 percent) of an oil spill occurring and striking San Miguel Island within 60 days, would be eliminated with the adoption of this alternative.

With this alternative, there would still, however, be as high as a 22 percent probability that oil would strike San Miguel Island. The origin of such a spill would probably be the existing leases that are near San Miguel Island.

Table VIII.A.14-1 shows the air pollutants which would not be produced on a peak emissions day if this alternative were chosen.

Table VIII.A.14-1

PROPOSED SALE NO. 48
SANTA BARBARA CHANNEL - MOST PROBABLE DEVELOPMENT ESTIMATES

Development Wells Drilled	Platform Placed	Subsea Completions Placed	Kilo-meters of Pipeline Laid (miles)	Drill Cuttings BBL's	Formation Water M BBL/Yr.	Mud to be Dumped BBL/Yr.	Cu. Yds. of Sediment Disturbance by Pipeline Burial	Platform Sewage ga/day
Without Alternative								
294	10	30	402 (250)	431,950	58,621	201,910	67,500	20,000
With Alternative								
206	7	21	282 (175)	302,365	41,035	141,331	47,250	14,000
1500								

ii. Biological: The biology of this area would suffer less impacts if this alternative was chosen. As previously mentioned, deletion of these tracts could cause a 23 percent reduction in the number of spills in the Santa Barbara Channel. The abundance and diversity of seabirds and pinnipeds on San Miguel Island are great. Any action that could reduce possible impacts to this resource would be significant. The possible direct and indirect impacts of OCS oil development in this area to the endangered brown pelican, humpback and grey whales, and the few Guadalupe fur seals found in the area would be reduced with this alternative.

iii. Social: This alternative would reduce the proposed OCS related work force by 455 people and the elimination of over 9 million dollars in salaries at peak employment of the project.

This alternative would reduce the potential impacts to commercial fisheries and threats of accidents along shipping routes in the area. This alternative would not alter the status quo of the visual esthetics or affect the current levels of recreation activities since the western portion of the Channel coast is sparsely populated.

c. Summary and Conclusion: Elimination of these tracts from the proposed lease sale would reduce, but not eliminate, the dangers of oil development activities, particularly, oil spills adversely impacting the biology of the area. Particularly, the large abundant and diverse seabird and pinniped populations of San Miguel Island.

This alternative would stop, at this time, the recovery of an estimated 90 million barrels of oil and 90 billion cubic feet of gas from the area.

Table VIII.A.14-2

AIR POLLUTION EMISSIONS

	Air Pollutants (kg/hr)				
	THC	NOx	CO	SO ₂	TSP
Percent of	273	225	19	21	7
Santa Barbara	7	< 1	< 1	< 1	< 1
and Ventura					
Counties:					

Note: THC - Total hydrocarbons
 NOx - nitrogen oxides
 CO - carbon monoxide
 SO₂ - sulfur dioxide
 TSP - total suspended particulates

15. Marine Sanctuary Tract Deletion Recommendation by the Department of Commerce: The United States Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) has recommended the deletion of the following lease tracts: Santa Barbara Channel 088-097, 098-108, and Santa Barbara Island 117-119. These tracts are within an area that NOAA is considering for designation as a marine sanctuary. (See Section I.D.4 for a discussion of the marine sanctuary proposals.)

Deletion of these tracts is thoroughly discussed in Section III.C.10. In this section, Table III.C.10-1 discusses areas of special biological importance and Table III.C.10-2 shows acreage and oil and gas foregone if this alternative were adopted. In addition to the material presented in Section III.C.10, the effects of deleting these tracts are covered in Alternatives 1,2,6,8,10,11,13, and 14 (Section VIII.A).

i. Summary of Impacts eliminated if the NOAA recommended Alternative were chosen: The number of oil spills of a 1000 barrels or greater that would not occur if this alternative were chosen would be about 0.1 spills of that magnitude. This would reduce the potential spills impacting the recommended marine sanctuary from 3.16 to 3.06 spills of a 1000 barrels or greater. The main advantage of adopting this alternative would be the reduced human disturbance of marine birds and mammals resulting from oil and gas related activities and the increased response time available to deploy oil spill dispersion and containment equipment between the recommended sanctuary and a possible spill. Overall, however, the impact of proposed Sale No. 48 related activity on a possible marine sanctuary with or without this NOAA recommended deletion alternative would be virtually the same in the Santa Barbara Channel area but it would reduce the projected impacts in the Santa Barbara Island area by more than half.

16. Delete Certain Deep Water Tracts Not Presently Subject To Development Using Conventional Technology. Of the 217 tracts proposed for the lease sale, 140 tracts are situated entirely or partly in deep waters, 300 meters or more in depth, with parts of some tracts ranging over 750 meters. At present, it is estimated that production capability can be extended to water depths of 400 meters using substantially proven surface development technology. Operations in water depths of more than 400 meters would most likely be accomplished by subsurface methods. At this time, although substantial experimentation has been performed on subsurface development and production techniques, a conventional technology has not been established. See eariler discussion in Section II.H.3.

The Secretary could decide, in these circumstances, to delete from the proposed sale all tracts which are situated in water depths of more than 300 meters. Adoption of this alternative would result in the elimination of approximately 781,017 acres (316,078 hectares) from the proposed sale, and the elimination of an unknown but possibly substantial portion of the estimated oil and gas resource potential of the proposed lease area. It would also eliminate all potential impacts described in Chapter III associated specifically with lease operations on such tracts. It would eliminate, for the present, the risk of failure of a deepwater drilling rig or production system and the attendant impacts.

Pipelining or barging of production would still be necessary from each of the six tract areas. However, the deletion of deepwater acreage in the Tanner-Cortes area and Santa Barbara Island area may reduce the resource potential of these areas so that laying a pipeline to shore through very deep water may not be economically feasible, ensuring that any production from the tracts remaining in these areas would be barged. The reduction in available tracts and in the amount of available reserves would, of course, reduce the need for gathering pipelines, but it cannot be determined, as yet, whether production would be reduced sufficiently to reduce the number of pipelines going ashore.

One of the aspects of orderly resource development is development of oil and gas resources in a manner which will promote technological innovation leading to increased production of OCS oil and gas resources. Adoption of this alternative could reduce or eliminate the amount of deep water acreage holding promise for development and production of oil and gas resources available to industry for exploration and development purposes. This could retard the development of environmentally sound deep water technology.

Section III.B.3 presents a comprehensive summary of all deep water systems actually in use, in prototype phases, and as proposals for the near future. Industry is in an advanced stage in its consideration, design and testing of systems capable of operating and producing hydrocarbons at depths comparable to those included in the proposed sale.

Tracts situated partly in deep water but having minimum water depths of less than 400 meters would offer potential drilling and production locations using existing technology. Tracts totally situated in water depths greater than 400 meters cannot at present be developed using conventional technology. If the proposed sale is held, development and production from any leases issued would not be expected for about 4 or 5 years after the sale. During this time, research and experimentation on deep water technology will be continuing.

Potential development and production of oil and gas resources from tracts situated in deep water would be subject to stringent requirements prior to approval of such operations. Any potential operations of this nature would have to be described in detail in development plan filed by a potential lessee, and would be subject to careful consideration by U.S.G.S. See 30 CFR, Part 250. In addition, if approval is requested of a proposed plan of development including development of deep water tracts, and it is determined to be a major Federal action significantly affecting the quality of the environment, an environmental impact statement would be prepared and considered prior to action on the request for approval.

The U.S.G.S. Platform Verification Program will require documentation of compliance with structure standards devised to ensure safe operation under all environmental loading forces at the insulation site. These environmental forces include, along with unstable sea floor conditions, storms, earthquakes, tsunamis, hurricanes, and ice movements, in addition to normal wave and wind forces. The verification program ensures that the U.S.G.S. will utilize the highest quality expertise in reviewing all production systems, as well as platforms, for safety. In addition, OCS Operating Orders nos. 2, 5, and 8, with their references to API recommend practices and standards, contain guidelines for assuring safe operations.

The recently enacted OCS Lands Act Amendments of 1978 require application of best available and safest technology. The standard will be applied to both exploration and development operations, including deep water operations. In addition, the OCS Lands Act Amendments authorize the Secretary of the Interior to disapprove any plan of exploration or development where he determines that exceptional circumstances exist and implementation of the plan would probably cause serious harm or damage to life, property, mineral deposits, national security, or to the marine, coastal or human environments. (See further discussion regarding deep water tract development in the response to the Environmental Protection Agency's comments on the DES.

B. Delay the Sale

The principal effect of deferring action on the proposal would be a comparatively short-term delay in the imposition of all related (positive and negative) impacts of the proposal. Delay would not affect coastal zone planning efforts as the California Coastal Plan has already been submitted and approved, and local plans must be developed and submitted no later than about 6 months after the proposed Sale date - well before any development could occur as a result of the Sale.

However, delay of the Sale to any later date would have the effect of increasing the negative aspects of projected socio-economic impacts. As population in Southern California continues to grow, greater pressures will be exerted upon available space and resources. The Curtis Harris Economic Model relates Sale No. 48 direct and induced activities to these pressures and projects impacts. Postponement of Sale No. 48 would add social and economic pressures to a system already struggling with rapid growth. The net affect could be a multiplicative emphasis of impacts in local areas, particularly Santa Barbara and Ventura Counties, and in the Southern California region.

With respect to technological factors, time is the companion of technological advance. Delay of the proposed Sale may allow industry and science to develop systems even more environmentally compatible. While a short-term delay is not expected to increase capabilities for oil spill containment systems, deeper-water technological advances can be expected for offshore structural systems (i.e., platforms, pipelines, etc.); the net effect being a distinct possibility of more tracts being developed in deeper water.

Knowledge of the existing physical, chemical, and biological environmental conditions is most extensive for the near-shore continental shelf margins. New studies, conducted during a short-term delay of the proposal, cannot be expected to significantly add to the base of data already available and in use to evaluate or re-evaluate the environmental compatibility of oil and gas leasing on the Outer Continental Shelf.

Over the past few decades, the United States has grown increasingly vulnerable to the supply of minerals and the actions of other nations possessing those resources. Deferment of the proposed action increases the probability that vulnerability may lead to reliance, and further, to dependence upon foreign suppliers for oil and gas in lieu of development of those available resources offshore Southern California. The 1978 OCS Lands Act Amendments extend somewhat and make more explicit the Secretary's regulatory control over OCS operations. Many of the provisions made statutory by this legislation have been exercised administratively through U.S. Geological Survey regulations and Orders.

For example, USGS has required submission of exploration and production plans by lessees or operators, as a requisite for approval of operations on a lease. Similarly, safety provisions in the legislation have codified existing regulations and OCS Orders; other regulations mandate provision of detailed geologic and operations information to affect States. The Amendments establish liability funds for oil spills and compensation for fishing gear damaged by OCS operations.

A delay of the sale to develop air quality regulations as mandated by the 1978 amendments would clearly establish the measures required of operators to meet the National Ambient Air Quality Standards of Section 5.(a)(8). However, delay would not, in all likelihood, alter the magnitude of these impacts since it is expected that Air Quality regulations will be approved before any exploration or development occurs.

C. Withdraw the Sale

An available alternative is to cancel the proposed Sale No. 48. This option would reduce future OCS oil and gas production, necessitate escalated imports of oil and gas and depend upon the development of alternate energy sources to reduce the impacts of the sale.

The oil-exporting countries probably will not be able to satisfy the increases in demand now projected to occur in the 1980's.

Recent surpluses of Alaskan crude oil in Southern California are short-term until permanent transportation systems are in place to move the crude to inland markets where it is needed. The oil and gas that would become available from the proposal over the next 20-year period could provide significant additions to the national domestic production. If Sale No. 48 is cancelled, an additive impact of greater oil and gas deficits resulting in increased imports can be expected nationally.

Withdrawal of Sale No. 48 would have no additional increment of environmental impact upon the Southern California Bight, which would continue in its present condition as further modified by natural processes and the continuation of all existing activity and uses. Withdrawal of Sale No. 48 would eliminate possible conflicts with proposed marine sanctuaries. Alternative energy sources needed to replace the oil and gas foregone if this proposed sale were withdrawn are discussed below.

Alternative Energy Sources

It is anticipated that the oil and gas that would become available from this proposal in the next 25-year period could provide significant contribution to this region's energy supply; if the subject sale were cancelled, the following energy actions or sources might be used as substitutes:

- Energy conservation
- Conventional oil and gas supplies
- Coal
- Nuclear power
- Oil shale
- Hydroelectric power
- Solar energy
- Energy imports
 - Oil imports
 - Natural gas pipeline imports
 - Liquefied natural gas imports
- Geothermal energy
- Other energy sources
- Combination of alternatives

This section briefly discusses these alternatives. For more detailed information on each of these energy sources and environmental impacts, refer to the study Energy Alternatives: A Comparative Analysis, (University of Oklahoma, 1975) prepared for the Bureau of Land Management by The Science and Public Policy Program of the University of Oklahoma.

1. Energy Conservation

a. Description: Vigorous energy conservation is an alternative that warrants serious consideration. The Project Independence Report of the Federal Energy Administration claims that energy conservation alone can reduce energy demand growth by 0.7 to 1.2 percent depending on the world price of oil. Aside from these savings, it is now widely recognized that wasteful consumption habits impose social costs that can no longer be afforded, as do pollution and an inequitable distribution of fuel.

The residential and commercial sectors of the economy are often characterized as inefficient energy consumers. Inadequate insulation, inefficient heating and cooling systems, poorly designed appliances, and excessive lighting are often noticed in these sectors. Reductions in consumption beyond those induced by fuel price increases could be achieved by new standards on products and building, and/or subsidies and incentives. Such incentives include standards for improved thermal efficiency in existing homes and offices and minimum thermal standards for new homes and offices.

Excessive consumption is also evident in the industrial sector where energy inefficient work schedules, poorly maintained equipment, use of equipment with extremely low heat transfer efficiencies, and failure to recycle heat and waste materials are all commonplace. Estimated energy savings of between 10 and 30 percent may be available in this sector of the economy.

Transportation of people and goods accounts for approximately 25 percent of nationwide energy use. Energy inefficiency in the transportation sector varies directly with automobile usage. Automobiles, which account for 90 percent of all passenger movement in the nation, use more than twice as much energy per passenger mile as buses. Moreover, the average car carries only 1.3 passengers. Using short- and mid-term conservation measures such as consumer education, lower speed limits, rate and service improvements on public transit and rail freight transit, energy savings of 15 to 25 percent might be achieved.

Other policies which could encourage fuel conservation in transportation include standards for more efficient new autos and incentives to reduce miles traveled. An important new development in the fuel economy area could be the modification of the standard internal combustion engine. Although such an engine is now in the advanced stages of development, further study by automotive engineers, industry, and concerned federal agencies is necessary before an acceptable engine may be designed.

Significant energy savings are clearly possible through accelerated conservation efforts. The Project Independence Report estimates that conservation alone could result in a 2.2 million barrel per day reduction in petroleum demand by 1985. In addition, several of the strategies mentioned above have been at least partially implemented by the Energy Policy and Conservation Act of 1975 (P.L. 94-163).

b. Environmental Impacts: The environmental impacts of a vigorous energy conservation program will be primarily beneficial. The exact nature and magnitude of these impacts will depend on whether there is a net reduction in energy use or whether the reduction is accomplished through technological change and substitutions. For the former, the net impacts will simply be that there are fewer pollutants of all kinds unleashed. As an example, the 2.2 million barrel per day savings by 1985 mentioned above would result in a diminishment nationwide of various pollutants by the following amounts.^a

CO--4 lbs/1,000 gals = 189 tons/day
Hydrocarbons--3 lbs/1,000 gals = 142 tons/day
Particulates--23 lbs/1,000 gals = 1,088 tons/day
NO_x--60 lbs/1,000 gals = 2,838 tons/day
SO₂--157 lbs/1,000 gals = 7,426 tons/day

^aHUD Contract #H2026R: "Research Evaluation of a System of Natural Air Conditioning."

However, if energy conservation is achieved by technological change or substitution, the net reductions will be those above, less the incremental pollutants from other sources, as well as any new pollutants which might arise from these other sources.

2. Conventional Oil and Gas Supplies

a. Description: Large quantities of oil and gas still remain in the United States. The U.S. Geological Survey (1975) estimates that onshore crude oil measured reserves as of December 31, 1974, were about 31 billion barrels, indicated reserves were 4.33 billion barrels, inferred reserves were 20.4 billion barrels, and undiscovered recoverable resources ranged from 37 billion barrels with a 95 percent probability and 81 billion barrels with a 5 percent probability.

Despite the magnitude of reserves, domestic oil production is likely to continue to decline from its peak production rate attained in 1970. All of the twelve oil production forecasts discussed in the Project Independence Blueprint claimed that, in the next few years, the United States petroleum production decline would continue. Most of these same forecasts predict increasing domestic production by the late 1970's, but only under the most favorable conditions in terms of prices, development of OCS resources, regulations, and environmental constraints.

The development of new reserves required to meet gas demand will depend on continued development of onshore areas and of commercially viable nuclear stimulation or massive hydraulic fracturing to produce natural gas from low permeability reservoirs. Additional domestic oil reserves are recoverable through secondary and tertiary extraction techniques. However, the additional oil that is attainable in this manner is in many cases "old" and hence has been subject to price controls. These controls have diminished the incentive for using these sophisticated and expensive recovery methods.

In a study of future natural gas production rates Duane and Karnitz (1975) concluded that the upper production limits of natural gas are now being approached. Two constraints are identified: the level of recoverable resources, and the production level that can be sustained for a reasonable time period. Once assumption of these two levels are made, there is not much room for variations in the maximum potentially attainable production rate. Assuming the current Potential Gas Committee's estimate of recoverable domestic natural gas resources (1,845 tcf for the U.S. including Alaska), the study considers two possible levels of natural gas production: 25 to 30 tcf/year under optimistic conditions, and 20-25 tcf/year under less optimistic conditions.

A detailed description of the crude oil and natural gas systems is found in Chapter 3 and 4 of Energy Alternatives: A Comparative Analysis.

The substitute directly for the subject sale, a combination of onshore and OCS production from other areas and continued foreign imports would be required to make up for the estimated total production of this proposed sale of 0.715 billion barrels of oil and 0.860 trillion cubic feet of gas, over a 25-year period.

b. Environmental Impact: This substitution would entail environmental impacts such as land subsidence, soil sterilization, and disruption of existing land use patterns. Equipment failure, human error, and blowouts may also impair environmental quality. Moreover, poor well construction, particularly in older wells, and oil spills can result in ground and surface water pollution.

The magnitude of these impacts would depend on whether the increased production resulted from improved recovery methods or new discoveries. If improved recovery is realized, the impacts will likely be of little significance and will occur in already developed areas. Should new discoveries be found, and this is unlikely, the impact will be more significant and disruptive, as the whole new infrastructure would have to be built from the ground up.

The water pollutants from onshore oil production are oil and dissolved solids. The amounts of each vary over a wide range. A summary of this is available in Energy Alternative: A Comparative Analysis.

Air pollutants (particulates, NO_x , SO_x , hydrocarbons and CO) result from blowouts and subsequent evaporation and burning. These are generally insignificant, except locally. These effects will be basically the same, whether the production is onshore or offshore.

Given the fact that onshore supplies are dwindling, California would have to continue its reliance on other regions and foreign imports for needed oil and gas. The decline in these supplies, even with energy conservation, could mean industrial shutdowns, unemployment rises, higher consumer prices, and changes in standard of living. The lack of natural gas will mean additional use of "dirtier" alternative fuels (oil, coal) with consequent impacts on air quality and human health.

3. Coal

a. Description: Coal is the most abundant energy resource in the United States. Coal deposits underlying nearly 460,000 square miles in 37 States constitute one-quarter of the known world supply and account for 80 percent of our proven fuel reserves. Proved reserves of coal contain 125 times the energy consumed in 1970. A detailed discussion of the coal resource system can be found in Chapter 1 of Energy Alternatives: A Comparative Analysis.

To replace the energy expected to be realized from the proposed Southern California sale, 203 million tons of coal would be necessary. Though domestic reserves could easily provide this quantity, serious limitations to coal development exist. In many uses, particularly in California, coal is an imperfect substitute for oil or natural gas. In many other cases, coal use and production is restricted by government constraints, limited availability of low sulfur deposits, inadequate mining, conversion and pollution abatement technology, and the hazardous environmental impacts associated with coal extraction and electricity generated from coal. Coal production is also threatened by the unique set of labor problems associated with mining and new strict standards for coal mine safety.

Although U.S. coal resources are very large, as with other extractable mineral fuels, there is some geographic dislocation. Most of our coal is found west of the Mississippi River far from the industrial areas of California. Also, much of the western coal is in arid or semi-arid areas where scarcity of water could constrain development.

The portion of the domesticated reserve base that is available for use depends on whether the coal deposit can legally be mined, and if it can, whether it is suited for underground or surface mining. Surface mines may recover up to 90 percent of the coal in a given mine; underground mines may recover 50 to 60 percent using room and pillar methods. Both underground and exposed coal deposits are found in the Eastern Province. However, statistics indicate that at the 1972 price only 12 percent of the total resource could be considered economically recoverable. As with other extractable hydrocarbons, the quantity of available coal is a function of coal's market price. Current increases in the market price for coal are making more of this resource base available for domestic consumption.

If an alternative to proposed OCS Sale No. 48 is greater reliance on coal, it may be expected that mining would increase in western states to provide the necessary fuel source.

b. Environmental Impact

i. Coal Utilization: Combustion of coal results in various emissions, notably SO_2 and particulates. If the expected production from this sale is replaced by coal, there will be an increase in these pollutants, especially if coal is substituted for the natural gas presently used. Technology to control these emissions is available but has not yet been proven sufficient to be widely applied. The sulfur content of eastern coal varies considerably but approximately 65 percent of the developed resources have a sulfur content exceeding 1 percent. Most of the U.S. low sulfur coal is located in the western states, far from major markets in California. Any large scale shift to coal would

require relaxation of emission regulations or improvement of technologies to convert coal to gaseous or liquid fuels.

ii. Surface Mining: The 203 million tons of coal that would be necessary to replace production from this proposed sale would require two large open-pit mines (assuming 5×10^6 tons annually each). The primary impact of surface mining is disruption of the land. This affects all local flora and fauna, water quality, and increases landscape problems due to erosion and runoff from the miner. Reclamation is difficult in the western states due to the lack of water to assist in revegetation. Other problems include acid mine water drainage, leachings from spoil piles, processing waste, and the disturbance caused by access and transportation. Noise and vibration resulting from operations can also be expected. Finally, surface mining causes conflicts with other resources uses (agriculture, recreations, water, wildlife habitat, as examples).

The land use of strip-mining ranges from 0.18 to 5.19 acres/ 10^{12} Btu extracted, depending on seam thickness and Btu content of the coal. Assuming a figure of two acres/ 10^{12} Btu, the total surface disturbance to substitute coal for oil and gas from this proposed lease sale could be on the order of 9,778 acres.

iii. Underground Mining: To replace the expected production from proposed Sale No. 48, four underground mines would be required (assuming 2×10^6 annual tons each). Underground mining primarily affects land and water quality. The land impacts are those that arise from subsidence, waste disposal, and access and transportation. Very little surface is disturbed. Subsidence can destroy structures, cause landslides and earthquakes, and disrupt groundwater circulation patterns. The amount of subsidence can control by the mining method used and the amount of coal removed. Both have detrimental effects on the economics of the operation.

Water quality is affected by both processing waste and the drainage of acid mine-water into surrounding areas. These can be minimized through the proper methods of control both during and after operations. Entrances can be sealed and waste piles can be replaced in the mine. This would also help minimize subsidence. There are also pollution problems associated with road and coal dust and the like, but these are minimal and easily controlled. Other disturbing aspects of mining have much less of an impact in an underground than a surface mine. Working conditions of underground mines have been improved under the Federal Coal Mining Health and Safety Act of 1969, although further efforts are needed to reduce health hazards. This program has resulted in increasing costs of underground mining relative to surface mining, which has even more severe environmental restraints and impacts.

iv. Coal Transportation: The five major transportation systems (road, rail, water, conveyor, and pipeline) all have some adverse environmental impacts. These include air and noise pollution, safety, land use, trash, disposal, and aesthetics. However, since spill problems are not associated with coal, most of the impacts can be controlled with greater care and consideration. A slurry pipeline also requires large supplies of water and must adequately dispose of this at the other end. Water availability is a problem in many areas of the U.S., especially in the west where energy resource requirements will have to compete with other existing commercial and private users for a limited and fragile supply.

v. Coal Conversion: Technology for conversion of coal into gaseous and liquid hydrocarbons has been established for several decades and a number of relatively low-capacity commercial plants exist in various parts of the world. However, few cost-effective advanced technologies have progressed beyond the pilot plant stage.

Numerous problems remain before commercial development of synthetic fuels from coal can proceed. Specific technical problems must be solved. The cost effectiveness of synthetic fuels from coal will depend on prices of other fuels, primarily oil and natural gas.

Control of adverse environmental effects will increase the cost of producing synfuels. Possible constraints on development include technological constraints; availability of skilled workers, raw materials (coal, water, steel), capital; and institutional constraints: government policies (energy resource leasing, coal mining regulations, permit procedures, etc.) and the willingness of industry to invest in development of new technologies. Present prices for synthetic natural gas are \$5.35 per thousand cubic feet versus about \$2.30 for conventional natural gas at the burner tip in California (American Gas Association, 1977).

Synthetic oil and gas could contribute substantially to energy supplies by the year 2000--up to 14 percent according to the synfuels Inter-Agency Task Force (Report to the President's Energy Resources Council, November 1975). However, the most important contributors would be high-Btu gas from coal, and synthetic crude oil from oil shales. Prospects for coal liquefaction and low-Btu gas appear less attractive. The success of these energy sources will depend on developing technology, the cost of the impacts, especially coal, and the cost of conventional oil and gas.

vi. Coal Gasification: Gaseous fuels with low, intermediate, or high energy content can be produced. Low and intermediate gases are produced in a two-stage process involving preparation and gasification, and the output is utilized as feedstock for electric

generators. A third process, upgrading, is required to produce high-Btu gas, which produces an end product usable by the consumer.

Among low-Btu gasification processes under development are: Lurgi, Koppers-Totzek (both in commercial use), Bureau of Mines Stirred Fixed Bed, and Westinghouse Fluidized Bed. Among high Btu-gasification processes are: Lurgi High-Btu gasification process, HYGAS, BI-Gas, Synthane, and CO₂ Acceptor.

The environmental impacts of coal gasification are those of mining plus those resulting from the production processing. Gasification processes have lower primary efficiency than direct coal combustion; more coal will have to be gasified to reach an equivalent Btu output. However, it is likely that coal gasification will achieve primary efficiencies of 70 percent (Hale, 1975) which is about twice that of coal to electricity end use. Water impacts of processing can be minimized by recycling and evaporation. However, large inputs of water are required for some of the technologies, thus creating the potential for conflicts in water-short areas. For example, a Koppers-Totzek gasifier producing 250×10^9 Btu per day will require water in the amount of 463,000 gallons per day and coal in the amount of 10,570 tons per day. To substitute for this proposed sale, 2.1 complexes would require 1 million gallons of water per day and 8.1 million tons of coal per year. The land use required for these plants, based on 330 acres per plant, would be 693 acres.

Air pollution could include sulfur dioxide, particulates, nitrous oxides, hydrocarbons, and carbon monoxides.

Land impacts result from solid waste disposal plus the land use for plant, coal storage, cooling sands, etc. Solid wastes include ash, sulfur and minute quantities of some radioactive isotopes.

vii. Coal Liquefaction: As with coal gasification, production of liquid fuels from coal requires either addition of hydrogen or removal of carbon from the compounds in the coal. Coal liquefaction can be viewed as a change in the carbon to hydrogen ratio that can be accomplished by one of these reactions: hydrogenation, pyrolysis, or catalytic conversion. Of these, only the last is in commercial operation. Among liquefaction processes under development are: synthoil, H-Coal, Solvent Refined Coal, Consol Synthetic Fuel, COED, TOSCOAL, and Fischer-Tropsch.

Again, the impacts of liquefaction will be those of mining and those of the processing plants. The available technologies have a recovery of from 0.5 to 3 barrels of oil per ton of coal processed.

Water effluents from liquefaction plants could contain amounts of phenols, solids, oil, ammonia, phosphates, and others. The waste water could be treated to remove most of these.

Air pollution could result from particulates, nitrogen and sulfur oxides, and other gases. Pollution control facilities would be required, but would lower the economic attractiveness of the plants.

Solid wastes would be mostly ash. Residue could be buried in the mine with little further environmental impact, if liquefaction plants are sited at the mine mouth.

Impacts from this alternative would probably be absorbed by states other than California.

4. Nuclear Power

a. Description: The predominant nuclear system used in the United States is the uranium dioxide fueled, light water moderated and cooled nuclear powerplant. Research and development is being directed toward other types of reactors, notably the breeder reactor and fusion reactors.

As of December 31, 1975, 56 nuclear plants with capacity of 37,500 NW were licensed to operate. At the end of 1975 nuclear power generated about 8 percent of the nation's electricity. However, about half of the electric power capacity now under construction is nuclear powered. Nuclear power development has encountered delays in licensing and siting, environmental constraints, and manufacturing and technical problems. Future capacity will be influenced by the availability of plant sites, plant licensing consideration, environmental factors, nuclear fuel cost, rate of development of the breeder and fusion reactors, and capital costs. In order to meet future uranium fuel requirements, it will be necessary to locate additional ore reserves through increased exploratory drilling activity.

Fuel cycle costs of nuclear reactors have increased only slightly since 1965, from a range of about 17 cents to 22 cents per million Btu, to about 30 cents in 1974. Present trends in reactor capital costs are significantly narrowing the economic advantage offered by fuel cycle costs, over coal and oil-fired plants.

b. Environmental Impact: Although nuclear plants do not emit particulates or gaseous pollutants from combustion, the potential for serious environmental problems exists. Some airborne and liquid radioactive materials are released to the environment during normal operation. The amounts released are very small and potential exposure has been shown to be less than the average level of natural radiation

exposure. The plants are designed and operated in such a way that the probability of harmful radioactivity released from accidents is very low.

Nuclear plants use essentially the same cooling process as fossil-fuel plants and thus share the problem of heat dissipation from cooling water. However, light water reactors require larger amounts of cooling water and discharge greater amounts of waste heat to the water than comparably sized fossil-fuel plants. The effects of thermal discharges may be beneficial in some though not all cases. Adverse effects can often be mitigated by use of cooling ponds or cooling towers.

Low level radioactive wastes from normal operation of a nuclear plant must be collected, placed in protective containers, and shipped to a Federally-licensed storage site and buried. High level wastes created within the fuel elements remain there until the fuel elements are processed. Currently, spent fuel is stored at NRC-licensed facilities. Plans call for recovering unused fuels at reprocessing plants, solidifying the wastes, and placing them in storage at a Federal Repository.

Primary residuals from light water reactors are waste heat and radioactive emissions. For a 1,000 MW(e) plant operating at a 75 percent load factor a 33 percent efficient nuclear plant would emit 47×10^{12} Btu's of waste heat annually. For comparison, a 40 percent efficient fossil fuel plant would emit 36×10^{12} Btu's of waste heat.

To substitute for this Southern California proposed sale, it would take more than two 1,000 MW(e) light water reactors to supply the equivalent energy, assuming 40 percent plant efficiency and 80 percent loading. First core loading of these plants would require 1,500 tons of enriched uranium (U_3O_8), with annual reloadings requiring over 500 tons total. This kind of substitution assumes that all oil and gas produced from this sale would generate electricity. Nationally, only 8 percent of oil and 18 percent of gas consumed is utilized to generate energy.

There are also impacts on land, water, and air quality arising from the mining of these uranium ores. Dwindling amounts of high grade reserves will increase the amounts of land mined for lower grade radioactive ores--primarily in western states. The mining operations will be similar to coal, but the nature and distribution of the deposits mean "lesser" impact while radioactive trailings cause unusual problems for disposal, the environment, and human health.

A more complete discussion of uranium mining and processing, their economics and environmental impacts, and nuclear fission and fusion can be found in Chapters 6 and 7 of Energy Alternatives: A Comparative Analysis.

5. Oil Shale

a. Description: Large areas of the United States are known to contain oil shale deposits but those in the Green River formation in Colorado, Wyoming, and Utah, have the greatest commercial potential. The oil shale resources of the Green River formation are estimated at 1,781 billion barrels, of which 129 billion barrels are classes one and two resources, 186 billion barrels are class three resources, and 1,466 billion barrels are class four resources.^a

To substitute the energy equivalent estimated to be produced from this proposed Mid-Atlantic sale, 1.25 billion tons of oil shale would have to be mined and processed.

b. Environmental Impact: Oil shale development poses serious environmental problems. With surface or conventional underground mining, it is very difficult to dispose of the huge quantities of spent shale, which occupy a larger volume than before the oil was extracted. Inducing revegetation in an area of oil shale development is difficult and may take more than ten years. In-place processing avoids many of these environmental hazards. The spent shale problem is much less severe with underground mining.

Air pollutants from the mining will come from dust and vehicular traffic. These will be predominantly particulates, followed by NO_x and CO, with minimal amounts of hydrocarbons SO_x and aldehydes.

The mining of oil shale requires little water, both for operations and for reclaiming solid wastes. Water pollutants are considered negligible but may arise if saline water were encountered during the operations and had to be disposed of.

However, the processing (retorting) operations consume large quantities of water and generate large amounts of waste water. The waste water must be treated and can be reused in the processes. Therefore, it has been assumed that water pollution will not be a problem outside the complex. However, the limited availability of input water in the development area could lead to resource use conflicts.

^aU.S. Energy Outlook, National Petroleum Council, Washington, D.C., 1972, pp. 207-208. Classes one and two deposits are at least 30 feet thick and average 30 gallons of oil per ton of shale, and include only the most accessible and better defined deposits. Class three deposits are as rich as classes one and two but more poorly defined and less favorably located. Class four deposits are lower grade, poorly defined deposits ranging down to 15 gallons of oil per ton of shale.

Air pollutants vary with the technology used. Solid waste comprises the greatest problem of oil shale processing. The volume of the waste is greater than the volume of the input. Therefore, backfilling and the like would not provide a sufficient disposal space. Finally, there are the impacts of access and of transporting the products. These are analogous to those of coal mining in the case of access, and petroleum distribution in the case of transporting the product.

A fuller description of this energy source can be found in Chapter 2 of Energy Alternatives: A Comparative Analysis.

6. Hydroelectric Power

a. Description: Hydropower is energy from falling water, which is used to drive turbines and thus produce electricity. Conventional hydroelectric developments convert the energy of natural regulated stream flows falling from a height of produce electric power. Pumped storage projects generate electric power by releasing water from an upper to a lower storage pool and then pumping the water back to the upper pool for repeated use. A pumped storage project consumes more energy than it generates but converts offpeak, low value energy to high value peak energy. A more detailed discussion of this energy source is found in Chapter 9 of the study Energy Alternatives: A Comparative Analysis

Many of the major hydroelectric sites operating today were developed in the early 1950's. Thirty to forty years ago hydroelectric plants supplied as much as 30 percent of the electricity produced in the United States. Although hydroplant production has steadily increased, thermal-electric plant production has increased at a faster rate.

As of May 1974, total conventional hydropower developed in the contiguous United States was 54,885 MW, nearly one-half of which was in the western states of Washington, Oregon, and California. Some 6,878 MW of conventional hydro capacity are now being installed, about 90 percent of which is in the western part of the country.

Much of recent hydroelectric development has been pumped storage capacity. As of May 1974, the total developed pumped storage capacity in the contiguous United States was 8,119 MW; capacity under construction was 6,253 MW.

The undeveloped potential for hydroelectric generation is about 93,000 MW in the lower 48 states and about 32,000 MW in Alaska. However, it is likely that hydroelectric power will continue to represent a declining percentage of the total U.S. energy mix due to the following: high capital costs, seasonal variations in waterflows, land use conflicts, environmental effects, water use, and flood control constraints. Sites

with the greatest production capacity and lowest development costs have already been exploited.

b. Environmental Impact: Construction of a hydroelectric dam represents an irreversible commitment of the land resource beneath the dam and lake. Flooding eliminates wildlife habitat and prevents other uses such as agriculture, mining, and free-flowing river recreation.

Hydroelectric projects do not consume fuel and do not cause air pollution. However, use of streams for power may displace recreational and other uses. Water released from reservoirs during summer months may change ambient water temperatures and lower the oxygen content of the river downstream, adversely affecting indigenous fish. Fluctuating reservoir releases during peak load operation may also adversely affect fisheries and downstream recreation. Screens placed over turbines prevent the entrance of fish, but small organisms may pass through and may be killed.

Fish may die from nitrogen supersaturation, which results at a dam when excess water escapes from the draining reservoir. High nitrogen levels in the Columbia and Snake Rivers pose a threat to the salmon and steelhead resources of these rivers. Other adverse impacts to water quality include possible saline water intrusion into waterways and decreased ability of the waters to accommodate waste discharges.

Air quality will only be affected by dust and emissions during the construction phase. Afterwards, if the impoundment is used for recreation, motor exhausts would occur..

7. Solar Energy

a. Description: Applications of solar energy must take into account the following:

Solar energy is a diffuse, low intensity source.

Its intensity is continuously variable with time of day, weather, and season.

Its availability differs widely between geographic areas.

Potential applications of solar energy show a wide range. Among them are:

Thermal energy for buildings

Water heating, space heating, space cooling, combined systems

Renewable clean fuel sources

Combustion of organic matter

Bioconversion of organic materials to methane

Pyrolysis of organic materials to gas, liquid, and solid fuels

Chemical reduction of organic materials to oil

Electric power generation

Thermal conversion

Photovoltaic - residential/commercial, ground central station, space central station

Wind energy conversion

Ocean thermal difference

b. Impacts: Although fuel costs for backup systems and maintenance costs for solar units are small when compared with operating costs of conventional heating and cooling systems, the high initial or "fixed" costs of solar units make them unattractive to many homeowners and builders. The typical solar heating system for a home costs \$5,000-\$6,000 (including costs of a standby conventional furnace) compared to \$1,000-\$2,000 for a conventional fossil-fuel home heating unit. However, the rising cost of the gas and oil needed by the conventional heaters means that, over time, the greater fixed costs of solar systems will be balanced by their lack of fuel costs.

Large-scale generation of electricity using solar energy is another promising application which is receiving increased funding. A number of technical and engineering problems now prevent commercialization of solar steam-electric plants, though pilot projects are well underway. It is estimated that solar electricity will be available on a significant scale in 10 to 15 years or more.

Additional detail on this resource alternative is found in Chapter 11 of Energy Alternatives: A Comparative Analysis (U.S. Government Federal Policy Task Force Review Group, Solar Energy Analysis, 1978; Solar Energy: Progress and Problems, 1978, EPA; Distributed Energy Systems in California's Future, 1978; U.S. DOE and Lawrence Berkeley Laboratories, et al.).

Among the disadvantages of solar-energy are high capital costs, expensive maintenance of solar collectors, thermal waste disposal, and distortion of local thermal balances.

b. Environmental Impact: The impacts so far identified with solar energy are relatively minimal. The primary effects of the use of this energy source on a wide scale will be land use. Due to the low density of the energy, large areas will be necessary for the collectors. However, the land use compares favorably with other forms of energy use such as coal extraction.

The only other area for concern known so far is thermal pollution. Direct use in space heating has no thermal effects. However, for solar electric power generation, heat will have to be collected and transferred to the generator. Some localized thermal pollution may occur as a result, but the problem is not expected to be significant. Finally, solar plants can only operate intermittently. Thus, the energy will have to be either stored, or backup fossil-fuel plants will have to be built. These will have their own sets of environmental constraints.

8. Oil Imports

a. Description: U.S. reliance on imported oil has increased steadily in the last decade. Competition on the world market and recent cutbacks in Middle Eastern oil exports (oil embargo of 1973) have raised concerns about availability of oil imports in the future. Declining resource availability and increasing domestic demand restrict potential imports from the Western Hemisphere nations, particularly Venezuela and Canada. Increasing imports from the Middle East brings problems of stability of supply, balance of payments, and U.S. off-loading capacity.

In February, 1977, U.S. imports of petroleum and petroleum products were 7,724,000 barrels/day.

During calendar year 1976, the U.S. imported an average of 5,287,000 barrels of crude oil and 1,927,000 barrels of refined oil each day (DOE, 1978). The peak production of 220,000 barrels per day from this proposed sale thus represents less than 2 percent of daily U.S. crude imports. To import the equivalent barrels of oil needed to replace the oil and gas from this proposed sale would total \$11 billion dollars at \$13 a barrel.

b. Environmental Impact: The primary hazard to the natural environment of increased oil imports is the possibility of oil spills, which can result from accidental discharge, intentional discharge, and tanker casualties. Intentional discharges would result largely from uncontrolled deballasting of tankers. The effects of chronic low-level pollution are largely unknown. The worldwide tanker casualty analysis indicates that, overall, an insignificant amount of the total volume of transported oil is spilled due to tanker accidents. However, a single incident such as the breakup of the TORREY CANYON in 1967 or the AMOCO

CADIZ in 1978 can have disastrous results. Of more concern than tanker spills is the impact to the social and economic environment. The potential for a future embargo under this option is such that American productivity and policy could become subservient to foreign influence. On a more subtle level, political alignments and policies of the United States could become tied to those of foreign oil powers. This option is the least acceptable for continued American energy independence.

9. Natural Gas Imports

a. Description: Imports of natural gas via pipeline have come largely from Canada, with small amounts from Mexico. In 1973, net pipeline imports from Canada were 1,028 bcf, about 4.6 percent of total natural gas used in the United States. These imports were about 33 percent of Canada's natural gas production. Natural gas pipeline imports from Mexico have not been a significant part of U.S. supply. In 1973, imports from Mexico were 1.6 bcf.

Mexico could be a significant source of future imports because of its relatively large natural gas resource base, in the Tampico-Tobasco region. Imports from Mexico were of a local nature until 1957 and have declined since 1969 but could be of major significance in the future. Canadian intentions to gradually phase out oil exports to the U.S. also puts into question increased natural gas pipeline exports.

Natural gas imports would have to be about .094 billion cubic feet per day to replace the gas production estimated to be available from this proposed Southern California sale.

b. Environmental Impact: The environmental impacts of increasing gas imports derive mainly from the possible increased use of land for pipeline construction. A further impact is the risk of explosions and fires. As with imports of oil, California could become dependent on foreign control of supply. Fluctuations of that supply could influence quality of life, productivity, and employment. American policies could also become influenced by decisions of foreign gas producers, much as they could under the option of increasing oil imports.

10. Liquified Natural Gas Imports

a. Description: The growing shortage of domestic natural gas has encouraged projects to import liquified natural gas (LNG) under long-term contract. Large scale shipping of LNG is a relatively new industry. Several LNG projects are now under consideration on the Pacific, Atlantic, and Gulf coasts. Security of foreign LNG is questionable. The complexity of the length of time involved in implementing these proposals has been increased by the need for negotiating preliminary contracts, securing the approval of the Federal Power Commission and

the exporting country, and making adequate provision for environmental and safety concerns in the proposed U.S. facilities.

b. Environmental Impacts: The environmental impacts of LNG imports arise from tankers; terminal, transfer, and regasification facilities; and transportation of gas. The primary hazard of handling LNG is the possibility of a fire or explosion during transportation, transfer, or storage.

Receiving and regasification facilities will require prime shoreline locations and dredging of channels. Regasification of LNG will release few pollutants to the air or water.

LNG imports will influence the U.S. balance of payments. This impact will depend on the origin and purchase price of the LNG, the source of the capital, and the country (U.S. or foreign) in which equipment is purchased and LNG tankers are built. Section I.E.11 discussed the proposed LNG terminal sites in Southern California.

11. Geothermal Energy

a. Description: Geothermal energy is primarily heat energy from the interior of the earth. It may be generated by radioactive decay of elements such as uranium or thorium, and friction due to tidal or crustal plate motions.

There are four major types of geothermal systems: hot water, vapor dominated, geopressured reservoirs, and hot dry rock systems.

In addition to electricity, geothermal energy can offer a potential for space heating, industrial processing, and other nonelectric uses in many areas which presently are highly dependent upon oil and gas for energy needs. However, geothermal electric generating plants are smaller than conventional plants and require a greater amount of steam to generate the same amount of energy. This is due to the fact that temperatures and pressures associated with geothermal areas are lower than those created at conventional power plants. In some areas, geothermal resources may have potential for space heating, industrial processing, and other non-electric uses.

The greatest potential for geothermal energy in the U.S. is found in the Rocky Mountain and Pacific regions; some potential exists in the Gulf Coastal Plain of Texas and Louisiana. The Geysers field in California is the most extensively developed source of geothermal energy in the United States. It has been producing power since 1969. Exploration efforts are also underway in the Imperial Valley, Salton Sea, Mono Lake, and Modoc County, California.

Within 20 years, geothermal energy may account for about 1 to 2 percent of total U.S. energy and about 5 percent of California's total energy consumption.

b. Environmental Impact: A number of gases are associated with geothermal systems and may pose health and pollution problems. These gases include ammonia, boric acid, carbon dioxide, carbon monoxide, hydrogen sulfide, and others. However, adverse air quality impacts are generally less than those associated with fossil-fuel plants. Also associated with geothermal energy systems are saline waters which must be disposed of and isolated from contact with ground water regimes.

Land quality problems stem from disturbance due to construction of related facilities, and possible ground subsidence which, in turn, can cause structural failures and loss of ground water storage capacity.

12. Other Energy Sources: The high cost and rapidly shrinking reserves of the traditional energy fuels have encouraged research into new and different sources for potential energy. Some of these alternate sources have been known for decades but high costs and technical problems have prevented their widespread use. They include tidal power, wind power, organic fuels and ocean thermal-gradients, among others.

Environmental impacts of these alternatives are difficult to assess, especially as a great amount of research and development remains to be completed before operational scale systems can be developed, tested, and evaluated for production and application.

The date of commercial availability of such alternatives will depend on the cost of the traditional energy fuels, the level of Federally subsidized research through ERDA assistance, and the solution of engineering and technical problems.

13. Combination of Alternatives: Within California, a combination of some of the most viable energy sources available to this area, discussed above, could be utilized to attain an energy equivalent comparable to that estimated to be produced within the 25-year field life anticipated by this proposed action. However, this combination of alternatives, in order to attain the needed energy mix peculiar to the infrastructure of this area, would have to consist of energy sources attainable now or within the 25-year timeframe that are transferable to the technology presently used, i.e., viable substitutes would have to be available for the petroleum and natural gas required by the petrochemical industrial complex, the petroleum used for the transportation sector, and the electricity and fuels used in the Southern California residential and commercial sectors.

Part II of the Energy Alternatives: A Comparative Analysis, particularly Chapter 16 "Comparing the Economic Costs of Energy Alternatives", discusses the factors that must be involved in developing technically and economically appropriate energy alternatives.

The most viable domestically available energy alternatives for the California region, technologies and economies allowing, probably would consist of the use of coal (for use in coal-fired power plants), coal gasification plants (to provide synthetic natural gas), nuclear power and solar energy (to provide energy for space heating), and oil shale processing (to provide petroleum), in addition to conventional oil and gas resources. The environmental impacts of each of these alternatives has been discussed briefly in the previous sections.

Based upon the range of undiscovered recoverable resources estimated by the USGS for this proposed Southern California sale area, Table VIII.C.13-1 presents the energy equivalents which would be required for other energy sources to substitute for this proposed action.

The future U.S. energy source mix will depend on a multiplicity of factors, among them the identification of resources, research and development efforts, development of technology, rate of economic growth, the economic climate, changes in life-style and priorities, capital investment decisions, energy prices, world oil prices, environmental quality priorities, government policies, and availability of imports.

The Project Independence Report estimated U.S. energy demand and domestic supply for four cases. These data are shown below (see Tables VIII.C.13-2 and 3).

The increases in domestic supply under the accelerated supply case are due largely to the following:

Standardization and expedited licensing to increase nuclear capacity 15% by 1985.

Significant new leasing, exploration and development of the Pacific, Gulf of Alaska, and Atlantic OCS.

Additional oil and gas pipelines from Alaska to the lower 48 states.

Increased Federal leasing and actions to allow additional oil shale production.

Opening National Petroleum Reserves #1 and #4 to full scale commercial development.

Table VIII.C.3-1

ENERGY NEEDED FROM OTHER SOURCES TO REPLACE
ANTICIPATED OIL AND GAS PRODUCTION FROM
PROPOSED OCS SALE NO. 48, SOUTHERN CALIFORNIA

Total Crude Oil Production (barrels) (Based on Conditional Mean Resources; 25-year production schedule)	0.715 billion
Total Natural Gas Production (cubic feet) (Conditional Mean; 25-years)	0.86 trillion
Crude Oil Btu Equivalent ^a	4.00×10^{15}
Natural Gas Btu Equivalent ^b	8.78×10^{14}
Total Oil & Gas Btu Equivalent	4.88×10^{15}
Energy Alternative Source Equivalents	
Oil alone (barrels)	0.872 billion
Total field life (years)	25
Annual average	34.857 million
Daily average	95,500
Gas alone (cubic feet)	4.77×10^{12}
Total field life (years)	25
Annual average (cubic feet)	1.91×10^{11}
Daily average (cubic feet)	524 million
Coal (tons) ^c	203 million
Annual average (tons)	8.13 million
Daily average (tons)	22.3 thousand
Coal gasification	
Low Btu ^d	
Number of plants	2.14
Coal required (tons)	
Total volume	206 million
Annual average	8.25 million
Daily average	22.6 million
Oil Shale ^e	
Total volume (tons)	1.25 billion
Annual average	49.9 million
Daily average	136.7 thousand

Table VIII.C.3-1 (Cont.)

Nuclear capacity ^f	
Number of light water reactors (1,000 MW(e) capacity)	3.71
First core fuel U ₃ O ₈ ^g	1,038 tons
Annual reload	37 tons

^aAssuming one barrel of oil equals 5.6×10^6 Btu.

^bAssuming one cubic foot of natural gas equals 1,021 Btu.

^cAssuming one ton of coal equals 24×10^6 Btu.

^dAssuming Koppers-Totzek processing requiring 10,570 tons/day of coal for an output of 250×10^9 Btu's/day. Also assumes coal of 8,780 Btu's per pound.

^eAssuming high grade shale recovery of 0.7 barrels per ton of oil shale.

^fOne kilowatt-hour equals 3,412 Btu at a theoretical conversion rate of other energy forms to electricity at 100% efficiency. Capacity is calculated assuming an 80% plant factor and 33% efficiency of fossil fuel electricity generation.

^gAssuming 30 metric tons enriched U₃O₈ first core fuels, and 10 metric tons enriched U₃O₈ annual reloads with plutonium recycle for each normalized 1,000 MW(e) light water reactor.

Table VIII.C.3-2

U.S. ENERGY DEMAND AND DOMESTIC SUPPLY, 1985

World Oil Price	\$11 Per Barrel	
	Demand (quads)	Domestic Supply (quads) ^a
Base case w/ and w/o emergency programs	102.9	96.3
Accelerated supply	104.2	104.8
Conservation	94.2	91.8
Accelerated supply plus conservation	96.3	96.3

Quad - a quadrillion Btu's.

^aThe data cites in this section are taken from: Federal Energy Administration, Project Independence Report, November, 1974. A more recent report, The National Energy Outlook, by FEA updates this material.

Table VIII.C.3-3 shows the breakdown of total domestic fuel supplies for the base case and the accelerated supply case.

Table VIII.C.3-3

DOMESTIC FUEL CONSUMPTION BY SOURCE, 1985
(in quads)

	\$11 World Oil		
	1972 Actual	Base Case	Accel. Supply
Coal	12.5	22.9	20.7
Oil	22.4	31.3	38.0
Gas	22.1	24.8	25.5
Hydro and Geothermal	2.9	4.8	4.8
Nuclear	0.6	12.5	14.7
Synthetics			0.4
Imports	11.7	6.5	0
Total	72.1	102.9	104.2

Possible mandatory allocation or other actions to assure critical materials and equipment to meet expected production levels.

For the base case, the Project Independence Report envisions the role of alternative energy sources as the following:

Petroleum production is severely constrained in the short run and greatly affected by world oil prices in the long run. Before 1977 there is little that can prevent domestic production from declining or at best remaining constant.

Coal production will increase significantly, but is limited by lack of markets. Increases are limited by rate of electric growth, increasing nuclear capacity, and environmental restrictions.

Potential increases in natural gas production are limited.

Nuclear power is expected to grow from 4.5% to 30% of total electric power generation.

Synthetic fuels will not play a major role between now and 1985.

Shale oil could reach 250,000 B/D by 1985 at \$11 world oil prices, but would be lower if \$7 prices prevail.

Geothermal, solar, and other advanced technologies are large potential sources, but will not contribute to our energy supplies until after 1985.

In the interest of clarity of presentation, the early parts of this section have discussed separately each potential alternative form of energy as a possible substitute to the proposed sale. However, it is unlikely that there will ever be a single definitive choice between energy sources, or that development of one source will preclude development of others. Different energy sources will differ in their rate of development and the extent of their contribution to total U.S. energy supplies. Understanding of the extent to which they may replace or complement offshore oil and gas requires reference to the total national energy picture. Relevant factors are:

Historical relationships indicate that energy requirements will grow at approximately the same rate as gross national product.

Energy requirements can be constrained to some degree through the price mechanisms in a free market or by more direct constraints. One important type of direct constraint operating to reduce energy requirements is through the substitution of capital investment in lieu of energy; e.g., insulation to save fuel. Other potentials for lower energy use have more far-reaching impacts and may be long range in their implementation--they include rationing, altered transportation modes, and major changes in living conditions and life styles. Even severe constraints on energy use can be expected to only slow, not halt, the growth in energy requirements within the timeframe of this statement.

Energy sources are not completely interchangeable. Solid fuels cannot be used directly in internal combustion engines for example. Fuel conversion potentials are severely limited in the short term although somewhat greater flexibility exists in the longer run and generally involve choices in energy-consuming capital goods.

The principal competitive interface between fuels is in electric powerplants. Moreover, the full range is flexibility in energy use is limited by environmental considerations.

A broad spectrum of research and development is being directed to energy conversion--more efficient nuclear reactors, coal gasification and liquefaction, liquified natural gas (LNG), and shale retorting, among others. Several of these should assume important roles in supplying future energy requirements, though their future competitive relationship is not yet predictable.

Major potential for filling the supply/demand imbalance for domestic resources are:

- More efficient use of energy
- Environmental acceptable systems which will permit production and use of larger volumes of domestic coals.
- Accelerated exploration and development of all domestic oil and gas resources.
- Development of the Nation's oil shale resources.

Of the foregoing, increased domestic oil and gas production offers considerable possibilities, although adequate incentives must exist for indicated and undiscovered domestic resources to be discovered and extracted.

The acceptability of oil and gas imports as an alternative is diminished by:

- The security risks inherent in placing reliance for essential energy supplies on sources which have demonstrated themselves to be politically unstable and prone to use interruption of petroleum supplies to exert economic and political pressure on their customers.
- The aggravation of unfavorable international trade and payments balances which would accompany substantial increases in oil and gas imports.
- Apparent high costs of liquefying and transporting natural gas other than overland by pipeline.

California and PAD V oil balance is shown in Table VIII.C.3-4 as taken from Energy Alternatives for California: Paths to the Future, Ahern et al., 1975.

Table VIII.C.3-4

CALIFORNIA AND PAD V OIL BALANCE
(In million barrels per year)

Category	Year					
	1975	1980	1985	1990	1995	2000
Medium Production, Medium Use						
California use ^a	607	630	636	679	704	747
California production	318	437	614	680	643	527
Pad V use ^a	867	900	909	970	1006	1067
Pad V production	397	1129	1660	2096	2117	1952
Pad V imports	470	91	--	--	--	--
Pad V balance	--	+320	+751	+1126	+1111	+885
Oil entering West Coast by tanker ^b	549	783	1046	1482	1474	1425
Medium Production, Low Use						
California use ^a	607	523	471	462	509	553
California production	318	437	614	680	643	527
Pad V use ^a	867	747	673	660	727	790
Pad V production	397	1129	1660	2096	2117	1952
Pad V imports	470	0	0	0	0	0
Pad V balance	0	+382	+987	+1436	+1390	+1162
Oil entering West Coast by tanker ^b	549	692	1046	1482	1474	1425
Low Production, High Use						
California use ^a	607	760	906	1034	1190	1362
California production	318	321	469	473	404	330
Pad V use ^a	867	1086	1294	1477	1700	1946
Pad V production	397	974	1325	1588	1513	1307
Pad V imports	470	367	224	144	442	894
Pad V balance	0	255	255	255	255	255
Oil entering West Coast by tanker ^b	549	1020	1080	1259	1551	1871

^aCalifornia use assumed to be 70 percent of Pad V use.

^bEqual to Pad V production less California production plus imports.

Source: Energy Alternatives for California
W. Ahern et al., 1975.

D. Proposed Stipulations Submitted by Santa Barbara County

1. Alternative Stipulations by State and Local Government: The Santa Barbara County Board of Supervisors submitted the following several proposed stipulations for inclusion to leases resulting from Sale No. 48. By in large, these proposed stipulations, or stipulations of similar wording are considered as part of the proposed action (see Chapter I.A.3), are existing standard stipulations printed on the lease form, or are satisfied by regulations, OCS Orders, or Notices to Lessees and Operators (see Appendixes B and C). However, each proposed stipulation is reproduced here and addressed specifically.

Proposed Stipulation No. 1 - Environmental Training Program

The (lessee) shall include in his exploration and development plans submitted under 30 CFR 250.34, a proposed environmental training program for all personnel involved in exploration or development activities (including personnel of lessee's contractors and subcontractors), for review and approval by the Supervisor pursuant to this Stipulation. The program shall be designed to inform each person working on the project of specific types of environmental, social, and cultural concerns which relate to the individual's job. This will also include special instruction for rig personnel, drillers, etc., who are actually involved in the drilling of exploratory and production wells, and the construction onsite and location of platforms, rigs, and other facilities. The proposed environmental training program shall also be provided to the contiguous local government agencies and to the State Office of Planning and Research for their review and comment. The program shall be formulated and implemented by qualified instructors experienced in each pertinent field of study and shall employ effective means to insure that personnel understand and use techniques necessary to preserve archaeological, geological, biological, and economic resources.

The lessee shall also submit for review and approval to the Supervisor a continuing technical environmental briefing program for the supervisory and managerial personnel of the lessee and its agents, contractors, and subcontractors. Copies of the continuing technical environmental briefing program shall be provided to affected local government agencies and the State Office of Planning and Research for their review and comment.

Industry, in particular, has initiated several programs for both management and project personnel to achieve a more compatible approach to oil and gas development. Since the Santa Barbara oil spill in January, 1969, a great many changes have been

undertaken by industry that are not required by the regulations of either the Bureau of Land Management, or of the U.S. Geological Survey. The Bureau of Land Management may add stipulations to lease contracts to meet special situations: for example, protective requirements near reefs with unusual environmental conditions. The USGS issues OCS Orders and Notices that govern day-to-day drilling and production operations.

The proposed environmental training program for "all personnel involved in exploration or development activities," as well as for "contiguous local government agencies" might best be realized through direct contact with industry, or special seminars sponsored by the Santa Barbara County Board of Supervisors.

Impacts. No change in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 2 - Transportation of Oil and Gas

The lessor reserves the right to determine whether oil produced pursuant to the terms of this lease will be transported to shore facilities by means of a pipeline, barges, tanker, or other appropriate means, and from shore facilities to market by means of pipeline, barges, tankers or other appropriate means. The lessor's decision regarding selected means of transportation will be made after review by the Supervisor of the feasibility studies and recommendations of the Joint Industry/Government Pipeline Working Group and other inter-governmental planning programs for the assessment and management of production and transportation of outer continental shelf oil and gas. The lessee agrees that, when feasible, all pipelines, including both flowlines and gathering lines for oil and gas, and lines for the movement of processed oil to refineries, shall be buried to a depth suitable for adequate protection from water currents, storm scouring, fisheries, trawling gear, and other uses as determined on a case by case basis by the lessor or its designee.

In the case of the movement of production, from the Santa Barbara Channel, or other areas of special biological, cultural or economic significance, wherever feasible as determined by feasibility studies conducted by the Joint Industry/Government Pipeline Working Group or its successor, on-shore pipelines will be used to transmit processed oil and gas from on-shore or off-shore processing plants to refineries. Barging or tankering of production will be permitted only in case of emergencies or under special circumstances as determined by the Supervisor after review and consultation with the Pipeline Working Group. Continuous barging or tankering will not be permitted in the event the on-shore pipeline for the movement

of crude processed oil from on-shore or off-shore processing plants to refineries is found by feasibility study to be the most environmentally sound method of transportation. The United States reserves the right to determine the method of transportation of production.

The Secretary of the Interior is presently considering establishing a program for the acquisition and evaluation of information and for inter-governmental planning related to the leasing and transportation of OCS oil and gas. The program will provide input to the Bureau of Land Management (BLM) for pre-leasing activities. It will provide inter-governmental plans for pipeline and surface transportation of oil and gas from OCS production areas to storage, processing, or distribution points within each leasing region. While the program applies to the responsibilities of the Bureau of Land Management and will be carried out by the Bureau, this Order will clarify the supportive roles and responsibilities of the Geological Survey (USGS), the Fish and Wildlife Service (USFWS), National Park Service (NPS), as well as non-federal agencies and industry. (See Special Stipulation No. 7, Chapter IV.B).

Impacts. No change in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 3 - Unitization and Consolidation

Unless the lessee can demonstrate to the satisfaction of the Supervisor and to the Governor of California that it would not be in the interest of conservation, all reservoirs underlying Lease Sale No. 48 which extend into one or more other leases, as indicated by drilling and other information made available to the Supervisor and the Governor, shall be operated and produced only under a unit agreement including such other lease, and approved by the Supervisor. Such a unit agreement shall provide for the fair and equitable allocation of production and costs. The Supervisor, after consultation with the Governor of California, shall prescribe the method of allocating production and costs in the event operators are unable to agree on a method acceptable to him. Proprietary data furnished to the Supervisor shall not be made available to the Governor unless adequate assurances have been provided against its release.

Unless the lessee can demonstrate to the satisfaction of the California Coastal Commission, the Office of the Governor of California, and the Supervisor, that it would not be in the interest of conservation, environmental protection, and most efficient land use, that production

from tracts leased in Sale No. 48 will be processed in individually owned and operated on-shore processing plants, such processing plants shall, whenever technically feasible, be consolidated, as specified by the policies of the California Coastal Commission and the California Coastal Act.

Of this proposed stipulation, the second paragraph is a general re-statement of requirements of the Coastal Zone Management Act of 1976. As the requirements are a matter of law, no stipulation is necessary. Also, the reference to any State agency or the Governor is inappropriate since the Secretary of the Interior cannot delegate any of his authority to the States.

Impacts. Provisions are existing for unitization, if required by the Supervisor, under Title 30 CFR Part 250.50. No change in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 4 - Geologic Hazards and Drilling Safeguards

The lessee shall make available to the Governor of the State of California and to the Supervisor, and to interested local governments, upon request, any shallow hazards or other geological hazards discovered in the exploration process or in the beginning of a development process. Data obtained by the lessee or his agents or contractors, shall be made available for review by the Governor, the interested local governments, and the Supervisor, and shall also make available any studies as may be conducted by the lessee, pursuant to terms of this lease.

After review of information, data and studies submitted by the lessee, the Supervisor, after consultation with the Office of the Governor of California and affected local governments, shall prescribe special drilling techniques and/or safeguards that will be implemented by the lessee in the exploration and development of leases in which geologic and other hazards have been identified. The lessee agrees to operate the lease in a manner best determined to avoid the hazards, or the potential for blowouts or spills caused by geologic or other identified hazards. Special techniques may include, but are not limited to, relocation of platforms, drilling structures, etc. in order to avoid hazards identified during the exploratory program. Proprietary information shall not be provided to the Governor without adequate assurance against its release.

Impacts. This proposed stipulation is a reiteration of 30 CFR 250.34(b) and Notice to Lessees and Operators 77-2. No change in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 5 - Monitoring Air and Water Quality

Lessees shall be required to install equipment for the monitoring of the quality of the air and water in the vicinity of lease operations, exploration, and production, as specified by the Supervisor. Equipment shall monitor releases of air pollution emissions, including but not limited to hydrocarbons, oxides of sulfur particulates, and others as specified in the National Ambient Air Quality Standard collection of data on wind and wave speed, direction, and other data; quality of water as affected by introduction of drill cuttings and drilling muds in the area disturbance of fish and wildlife as determined by counts and population studies on fish and wildlife in the area; and other biologic and ecologic indicators as specified by the Supervisor and as identified in the base line study required under the Outer Continental Shelf Lands Act. Lessee shall make available upon request all data, information, reports, films, tapes, etc. generated by monitoring equipment specified by the Supervisor, to state and local governments without undue delay. All operators, their personnel and subcontractors, shall cooperate and assist to the fullest extent possible in the furtherance of the monitoring studies and the provisions of information to state and local and federal agencies.

Air Monitoring Systems - Attachment A

Conditions include the implementation and operation of an ambient air monitoring program. Monitoring will begin one year prior to commencing lease or project operations and continue indefinitely. Gaseous pollutants include THC less Methane measured with SO₂, NO, NO₂, NO_x, TSP, SO₄ and ozone. Meteorological parameters will include wind speed and direction and atmospheric stability (Delta temperature). Collection of ambient air quality data will document any significant deterioration of the atmosphere and insure the maintenance of ambient air quality standards.

A. The monitoring program shall state specific monitoring locations, criteria for selection of the location, operation and equipment maintenance program; and reduction of data. Final site determinations shall be subject to Air Pollution Control District's approval.

B. The following lists the parameters measured at each site:

1st site

THC (less Methane)

SO₂

SO₄

NO

NO₂

NO_x

TSP

Ozone

Wind Speed and Direction

Atmospheric stability (Marine and Onshore Location) Delta

Temperature

C. All monitoring equipment must be housed in temperature controlled structures (3.0°C).

D. All air quality, meteorological and data reduction systems must be instrumentation approved by Santa Barbara Air Pollution Control District before installation.

E. Data shall be recorded continuously on both strip chart recorders and magnetic tape data acquisition system compatible for play back on Santa Barbara County Air Pollution Control District's data reduction equipment.

F. Reduced data will be also supplied to Santa Barbara County Air Pollution Control District and the California Air Resources Board on standard ARB monthly data form, TSD - 1 (4/77) no

later than 14 days after the end of each month of monitoring for all gaseous parameters. Particulate and sulfate data shall be delivered no later than 6 weeks after each month of monitoring on ARB Form TSC - 3 (4/77).

- G. Magnetic tape cassette recordings of all pollutant and meteorological data will be delivered to Santa Barbara County Air Pollution Control District no later than 14 days after the end of each month of monitoring for transcription of data on the Air Pollution Control District's playback equipment. Strip chart recordings will also be delivered to the APCD at the same time.
- H. All data collected will be considered public data and available for public inspection or duplication.
- I. Operation and maintenance of the monitoring program shall be conducted by professional individuals or contracting firms with a minimum of 3 years direct field experience in the use of air quality and meteorological monitoring instrumentation. A resume of work experience shall be supplied to the Santa Barbara County Air Pollution Control District upon request for any individual directly involved in the monitoring program.
- J. A documented quality assurance plan must be submitted to the APCD for approval 30 days prior to the beginning of ambient air monitoring. The quality assurance plan shall conform to the requirements of the SBAPCD, California Air Resources Board and the United States Environmental Protection Agency for the operation and maintenance of an ambient air monitoring program.
- K. Calibration of equipment shall be conducted on all sensors and data reduction equipment in a manner and at intervals specified by the SBAPCD. Records of all dynamic calibrations shall be supplied to SBAPCD no later than 7 days after each calibration.
- L. The SBAPCD and CARB staff shall have immediate access to monitoring locations for either inspections or auditing the air monitoring program.
- M. To insure that all data collected is reliable and valid, the ambient air monitoring program must follow the quality assurance plan approved by SBAPCD and CARB. This plan must include submission of site criteria to CARB and designation of ARB site numbers for each monitoring location to allow data to be filed in the ARB data bank.

The question of applicability of air quality standards in international waters has not been settled.

The Department of the Interior is currently developing regulations to administer the Clean Air Act on the OCS, as OCS activities significantly affect onshore air quality.

The affectation of water quality is currently recognized by the regulations of the U.S. Geological Survey (30 CFR 250.43 and .46), and the EPA, depending upon the source of contaminant and the area of respective jurisdiction.

Impacts. Count and population studies of fish and wildlife, biologic and ecologic indicators are subjects of on-going special and base line studies contracted by agencies of the Department of the Interior. No change in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 6 - Development of Natural Gas

Lessee shall immediately and accurately report the location and estimate of the magnitude of finds of natural gas to the Supervisor and to the Office of the Governor of California. Upon determination by the Supervisor, after consultation with the lessee and the Office of the Governor of California, and the Energy Resources Conservation and Development Commission, and the Public Utilities Commission of California, the Supervisor shall determine if the magnitude of the discovery merits commercial development. If the Supervisor determines that the gas discovery is commercial in size and quality, the lessee shall develop it fully consistent with good reservoir engineering practice, providing natural gas to the adjacent state or other states through pipelines in order to meet the goals of the National Energy Policy. Lessee shall not be allowed to unnecessarily reinject natural gas into the formation to avoid requirements for its development, nor shall lessees be allowed to fail to develop commercial discoveries of natural gas as identified by the Supervisor. Failure to report discoveries of potential commercial amounts of natural gas will constitute a breach of this lease.

The Secretary of the Interior cannot delegate his authority to State Government. The provisions of this proposed stipulation are included in the regulations of the U.S. Geological Survey: 30 CFR 250.16 and 250.33. No change in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 7 - Offshore Storage and Treatment (OS and T)

Lessee shall not construct, locate, or otherwise utilize equipment known as "OS & T's" or offshore storage and terminals" for the purpose of processing and storing outer continental shelf production for later transportation to refineries. All production, both oil and gas, from the outer continental shelf lease Sale No. 48, shall be, whenever technically feasible, pipelines to on-shore processing plants for processing and movement to market. The Supervisor, after consultation with the Office of the Governor, the California Coastal Commission, and affected local governments, may exempt lessees from this prohibition

in the event that he determines that pipelining and/or barging or tankering of lease Sale No. 48 production to shore for processing and movement to market is not technically feasible, would unduly increase danger to the environment or the health and safety of nearby communities, and the employees of the lessee.

A floating treatment and storage facility is a presently available alternative which may be installed as a means of expediting the commencement of production or as an alternative to onshore facilities.

Impacts. Inclusion of this proposed stipulation could result in a higher level of environmental impact because it will require disruption of the seafloor along the lengths of new pipelines, and surface disturbance at sites of construction activities for onshore facilities. In addition, the costs associated with pipelines, an on-shore facility, and the delays in acquiring permits from non-federal jurisdictions could change the economics of field development to prevent production.

Proposed Stipulation No. 8 -Spill Cleanup and Containment of Equipment

Lessee shall be required to install, maintain, upgrade and operate oil spill prevention, containment, and cleanup devices in accordance with the development of technology, installing and utilizing the best available technology. Devices shall be upgraded from time to time when necessary, with the addition of new devices, the replacement of existing devices or the adoption of new techniques in accordance with the safety and pollution regulations relating to public health, safety, or environmental protection from time to time promulgated by the Environmental Protection Agency, United States Geological Survey, Bureau of Land Management, or the United States Coast Guard.

Lessees shall require of their personnel and subcontractors, by written contract, the prevention of dumping of equipment or other material (toxic or otherwise) into the ocean. Lessee shall be required to educate their personnel and the subcontractors concerning the problems caused by equipment dumping and the standards and criteria of the Ocean Dumping Act. Lessees shall be required to educate their personnel, including subcontractors, in the prevention of unnecessary oil spills, the containment and the use of containment equipment, and the cleanup of oil spills and the use of cleanup equipment. This stipulation applies not only to structures placed on the sea bed in the outer continental shelf, but also to on-shore structures operated by the lessees or their customers, contractors, subcontractors or partners, for the processing, storage, transportation of production from lease Sale No. 48.

Lessee shall place or cause to be placed in on-shore locations as specified by the California Coastal Commission, the Office of the Governor of California, with the concurrence of the Supervisor and the adjacent counties, such oil spill prevention, containment and cleanup equipment as is found necessary to protect the biologic, ecologic, and economic resources of the coast of California and the waters of the Southern California Bight.

The Department of the Interior has no direct authority to apply such a stipulation to developmental activities that might occur onshore. The Environmental Protection Agency has jurisdiction in that area.

Impacts. The provisions of this proposed stipulation relative to offshore oil spill prevention and cleanup are included in OCS Order No. 7 (see Appendix B). No difference in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 9 - Areas of Biological Significance

If the Supervisor, having reason to believe that an area of special biological significance as indicated by the State of California or affected local governments, may exist in the lease area, gives the lessee written notice that the lessor is invoking the provisions of this Stipulation, the lessee shall, upon receipt of such notice, comply with the following requirements:

Prior to any drilling activity, or the construction or placement of any structures for exploration or development of lease areas including, but not limited to, well drilling and pipeline and platform placement, hereinafter in this Stipulation referred to as "operation," the lessee shall conduct block-wide or site-specific surveys, as approved by the Supervisor after consultation with the Office of the Governor of California, and the affected local government, to determine if the block or site contains special biological communities that may be adversely affected by any lease operation. If the surveys indicate the existence of such communities, the lessee shall: (1) establish, to the satisfaction of the Supervisor, that such operation will not have a significant adverse affect on the community identified; or (2) modify its operating procedure or equipment location to minimize the impact of the operation on the biological and ecological resources of the area. Such modification shall be approved by the Supervisor.

All data obtained in the course of any biological surveys conducted pursuant to the provisions hereof shall be

submitted in a Report to the Supervisor with copies to the Office of the Governor, and the Coastal Zone Commission, prior to or with any application by the lessee for drilling or any other activity. A copy shall be sent to the Manager of the Pacific Outer Continental Shelf Office of the Bureau of Land Management. Should the Supervisor determine that the existence of a biological resource which may be adversely affected by such operation exists, the lessee shall take no action that may result in any adverse affect on such resource until the Supervisor has given the lessee directions with respect to that resource.

The lessee agrees that, if any community of special biological significance should be discovered during the conduct of any operations on the lease area, he shall report such findings to the Supervisor, and make every reasonable effort to preserve and protect the resource from damage until the Supervisor has given the lessee direction with respect to the resource.

An area of special biolgoical significance shall mean "any area of resource which meets one of the following criteria:

- (1) High intensity fin fish catch or shell fish catch areas;
- (2) A spawning ground for fin fish, shell fish or other aquatic life;
- (3) A breeding ground for mammals or birds, or haul out ground for marine mammals;
- (4) A critical habitat for rare or endangered species;
- (5) Any other areas which are essential to the prevention of waste, or conservation of the natural or biological resources of the outer continental shelf.

"Areas of Special Biological Significance" is a restricted designation to waters within State jurisdiction where the Supervisor has no authority. Special Stipulation No. 5 is similarly designed to protect such valuable biological areas in federally-administered waters.

Impacts. The intent of this proposed stipulation is embodied in both Special Stipulation No. 5 (see Chapter IV.B), and Notice to Lessees and Operators No. 77-4 (see Appendix C). No difference in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 10 - Cultural Resources

If the Supervisor has a reason to believe after consultation with the California Coastal Commission, the Office of the

Governor of California, and the adjacent local governments, that a site, structure, or object of historical or archaeological significance hereinafter referred to as "cultural resource," may exist in the lease area, gives the lessee written notice that the lessor is invoking the provisions of this Stipulation, the lessee shall, upon receipt of such notice, comply with the following requirements:

Prior to any drilling activity or the construction or placement of any structure for exploration or development on the lease, including, but not limited to, well-drilling and pipeline and platform placement, hereinafter in this Stipulation referred to as "operation," the lessee shall conduct remote sensing survey and other reserach to determine the potential significance of any cultural resource that may be affected by any such operations. All data produced by such remote sensing and other research as well as other pertinent natural and cultural environmental data, shall be examined by a qualified marine survey archaeologist and made available to the state and local adjacent communities to determine if indications are present suggesting the existence of a cultural resource that may be adversely affected by any lease operation. A report of this survey and assessment shall be prepared by the Marine Survey Archaeologist and shall be submitted by the lessee to the Supervisor and to the Manager of the Pacific Outer Continental Shelf Office of the Bureau of Land Management, to the Office of Planning and Research of the Governor's Office in California, and to appropriate agencies of affected local government.

If such cultural resource indicators are present, the lessee shall: 1) locate the site of such operation so as not to adversely affect the identified location; or 2) establish to the satisfaction of the Supervisor, on the basis of further archaeological investigation conducted by a qualified Marine Survey Archaeologist or Underwater Archaeologist, using such survey equipment and techniques as deemed necessary by the Supervisor, either that such operation will not adversely affect the location identified or that the potential cultural resource suggested by the indicators does not exist.

The lessee agrees that if any site, structure, or object of historical or archaeological significance should be

discovered during the conduct of any operations on the leased areas, he shall report immediately such findings to the Supervisor, and make every reasonable effort to preserve and protect the cultural resource from damage until the Supervisor has given directions as to its disposition.

Impacts. Special Stipulation No. 3 includes all measures to protect cultural, archeologic, and historic resources. See also Notice to Lessees and Operators 77-3, and Section IV.B. No difference in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 11 - Notice of Onshore Support Activity

To assist coastal communities in planning for the impact of activities during exploration under this lease, the lessee shall submit, for review and comment, to the Governor of the State of California, and to local jurisdictions that will be directly affected by these activities a "Notice of Support Activity for the Exploration Program" (called hereinafter in this Stipulation "Notice"). When the lessee has doubts as to which local jurisdiction shall be informed, he will be guided by the advice of the Supervisor, or the Office of Planning and Research of the Governor of California. The lessee shall not be required to include privileged information in the Notice. A lessee shall have discretion whether to submit a 30 CFR 250.34 plan on a lease or to submit a Notice in connection with two or more plans on one or more leases. The Notice shall not be subject to approval or disapproval by the Supervisor.

A copy of the Notice shall be submitted to the Supervisor and the Office of the Governor and the affected local governments simultaneously with, or prior to, the Exploration Plan with a certification that it has been submitted to the Governor of California and to the local jurisdictions that will be directly affected by activities under the Plan. If the lessee shall submit a Notice in connection with two or more Exploration Plans, he shall not be required to submit additional copies of the Notice, but may instead, refer to that previous submission. Before the Supervisor approves or disapproves the Exploration Plan, he shall allow at least thirty (30) days from the date of receipt of the certification for the Governor and the local jurisdiction to submit comments on the Notice to him as well as to the lessee. Subsequent to the submission of the certification, significant changes in estimated Support activities will be forwarded by the lessee, as an amendment to the Notice to the Supervisor to the Governor, and the

local jurisdictions that will be directly affected by the Program.

The Notice shall include with respect to the lessee and his contracts:

- (1) A description of the facilities, including the site and size that may be constructed, leased, rented, or otherwise procured in the affected area;
- (2) The location and amount of acreage required within a state or facilities, including the need for storage of various supplies;
- (3) An estimate of the frequency of boat and aircraft departures and arrivals on a monthly basis, and the onshore location of terminals;
- (4) The approximate number of persons who are expected to be engaged in onshore support activities and transportation, the approximate number of local personnel who are expected to be employed for or in support of the exploration program, and the approximate total number of persons expected to be employed for the exploration program;
- (5) Estimates of the approximate addition to the population, on a county basis, due to exploration and/or development, and the approximate kind and level of county or municipal services that will be required;
- (6) An estimate of taxes, both property and income, the exploration and development will generate;
- (7) The onshore address of the lessee's operation officers and the contractor's offices involved in exploration and development.

In addition, the costs involved to implement this proposed stipulation could run into thousands of dollars per operator with no apparent improvement in the assistance to coastal communities for planning over the present system.

Impacts. The requirements of this proposed stipulation appear in the USGS regulations (30 CFR 250.34), and in the Coastal Zone Management Act amendments of 1976. No change in impacts is anticipated if this stipulation were adopted.

Proposed Stipulation No. 12 - Sea Bird and Marine Mammal Rookeries

To reduce the impact of human disturbance, (i.e., aircraft and vessel traffic and development in production operations) at sea bird colonies and marine mammal rookeries and haul-out areas, boats, drill barges, drill rigs will be routed and/or implaced at least three miles from all colonies, rookeries and haul-out areas. In addition, during this period, fixed wing and rotary aircraft must maintain a one mile horizontal and a one hundred foot vertical distance from sea bird colonies and marine mammal rookeries and haul-out areas.

The list and geographic location of major sea bird colonies and marine mammal rookeries will be available from the Manager of Pacific Outer Continental Shelf Office of the Bureau of Land Management, or from the staff of the California Coastal commission Office in San Francisco. The location of any major colonies, rookeries or haul-out areas discovered in the future will be submitted to the Manager of the Pacific Outer Continental Shelf Office, and to the Staff of the Coastal Commission for addition to the present list. Human safety will at all times take precedence over the provisions of this Stipulation.

The impact of human disturbance upon sea bird colonies and marine mammal rookeries has been discussed in Chapter III. Quantitative data does not exist to support any particular critical distance requirements although human activity is known to disturb some marine mammals during parts of the year. Federal jurisdiction does not encompass areas within three miles of any known marine mammal rookery or haul-out area. Therefore, in all probability, drill barges and rigs will not be "emplaced" within that range of marine mammal concentrations.

This proposed stipulation prevents any waiver of its provisions which could be made to contain any spill at sea by use of boats within three miles of a marine mammal rookery.

Since "all" boats are included in the proposed stipulation, it becomes obvious that barge-placement of oil transportation systems (pipelines) from Santa Rosa and Tanner-Cortes Bank lease areas could not be realized as proposed (see Figure III.A.3-1). Current technology limits the water depths in which pipelines may be successfully laid and maintained, thus the impact of this proposal is to restrict transportation of oil and gas from a portion of Sale No. 48 to alternate systems.

Proposed Stipulation No. 13 - Cooperation with Local Government

The Department of the Interior recognizes the special human and environmental quality of the Santa Barbara Channel and the Southern California Bight, and expects lessees to work closely with state and local officials to minimize potential conflicts with commercial fishing, tourism, and other energy project vessel traffic and to minimize any adverse affects upon shore development. In enforcing safety and environmental conservation laws and regulations the Supervisor will require the use of the best available and safest technology which the Secretary determines to be feasible, and will cooperate with the relevant Federal agencies in the State of California.

The Department the Interior will seek the advice of the State of California and other Federal agencies, and local governments, to identify areas of special concern which might require the burial of pipelines, alternative methods for disposal of drilling muds and formation waters, and the reduction and/or monitoring of boats and air traffic in the Santa Barbara Channel and entrances to ports and harbors in the Southern California Bight.

This proposed stipulation is inappropriate as written in that it describes an intergovernmental relationship and not operational measures to be taken by a lessee to meet special situations.

Proposed Stipulation No. 14 - Air Pollution

Operators shall use the best achievable control technology to prevent or reduce air emissions as required by the Clean Air Act. An air quality impact analysis for any new or modified source capable of emitting five pounds per hour of any contaminant shall be required. Complete concurrence of the local APCD when new source review applications are submitted to EPA for completeness of support information and the ability to meet local rules and regulations for mass emission requirements shall be required.

The Department of the Interior is currently developing regulations to administer the Clean Air Act on the OCS, as OCS activities significantly affect onshore air quality.

CHAPTER IX

IX. CONSULTATION AND COORDINATION

A. Preparation of the Draft Environmental Statement (DES)

1. Groups Contacted During DES Preparation

During the preparation of this DES the organizations listed below were contacted via mail and/or visitation, and requested to provide assistance in one or more of the following categories: a) Direct Impact/Contribution to DES content; b) Liaison or Coordination activity; and c) review function.

- a. Federal
(See attached listing coded "F")
- b. Regional Government
(See attached listing coded "R")
- c. State Government
(See attached listing coded "S")
- d. County Government
(See attached listing coded "Co")
- e. City Government
(See attached listing coded "L")
- f. Industry
(See attached listing coded "I")
- g. Academic and Research
(See attached listing coded "A")
- h. Professional/Environmental/Citizens
(See attached listing coded "C&P")
- i. Other Groups
(See attached listing coded "O")
- j. International
(See attached listing coded "Int")

2. Significant Meetings Between BLM and various Publics

The following data and associated items represent all significant BLM/Public contacts, consultations, meetings, etc., commencing with the Tentative Tract Selection phase (January 18, 1977) of the OCS Leasing Process. (For public interface prior to tract selection, see Chapter I). In addition to the public contacts listed below, more than 600 pieces of coordination correspondence have been generated over the last 18 months, directly related to the lease-sale. More than 70 percent of the correspondence was directed or received from non-Federal publics.

F=Federal	O=Other Groups
R=Regional	C&P=Citizen/Professional Groups/Environmental
S=State	I=Industry
Co=County	A=Academic and Research
L=City	Int=International

F U.S. Department of the Navy
 L Mayor, City of Oceanside
 S State Lands Commission
 S California Department of Parks and Recreation
 Co Ventura County-Air Pollution Control District (APCD)
 L City of San Diego
 C San Diego Comprehensive Planning Organization
 I Western Oil and Gas Association
 F Vandenberg Air Force Base
 L Mayor, Santa Barbara
 C&P California Natural Resources Federation
 Co Los Angeles County Board of Supervisors
 S State Office of Planning and Research
 C Mayor, City of Port Hueneme
 I Exxon Corporation
 F U.S. Geological Survey
 R Southern California Association of Governments
 Co Ventura Environmental Resources Agency
 L Los Angeles County Planning Department
 A University of Southern California (Sea Grant)
 Co San Diego Air Pollution Control District
 L San Diego Mayor's Offshore Oil Committee
 O Lockheed Marine Biology Laboratory
 C&P Get Oil Out, Inc.
 National Climatic Center
 F Naval Undersea Center-San Diego
 Co Ventura County Planning Department
 L Mayor, Los Angeles
 L San Clemente City Council
 I Sour Economic Systems, Inc.
 F Fish and Wildlife Service
 A U.C. Santa Barbara
 F National Marine Fisheries Service
 S Division of Oil and Gas-California
 Co San Diego County Integrated Planning Office
 A U.C. San Diego
 L Palos Verdes City Councilmen
 C&P Audubon Society
 L Office of Environmental Quality-Santa Barbara
 C&P League of Women Voters
 R South Coast Air Quality Management District
 L Newport Beach
 L City of Del Mar
 S California Air Resources Board

S California Resources Agency
 S California Department of Fish and Game
 S California Department of Conservation
 F U.S. Coast Guard
 F Point Mugu, USN
 F Federal Energy Administration (DOE)
 F Environmental Protection Agency
 I Pacific Gas and Electric
 F U.S. Army Corps of Engineers
 I Southern California Edison
 I Western Oil Development Company
 S Congressman R. J. Lagomarsims
 I Shell Oil Company
 I Hunt-Wesson Foods
 S California State Bureau of Business Service and Resources
 Co San Diego County Supervisor (Mr. R. Hedgecock)
 C&P Auto Club of Southern California
 I Western Oil Company
 O San Diego Museum of Natural History
 C&P American Society of Planning Officials
 F Department of Commerce
 C&P American Institute of Planners
 C&P Carpenteria Valley Association
 S New England River Basin Commission
 I Amenoil
 L Deputy City Attorney, Santa Barbara
 O American Embassy, Mexico City
 O Cabrillo Historical Association
 O Santa Ynez Historical Society.
 O Santa Maria Valley Historical Society
 O Santa Barbara Trust for History Preservation
 O Historical Preservation Society of Santa Barbara County
 O Pleasant Valley Historical Society
 O Lompoc Valley Historical Society
 O Fremont-Kearny Historical Society
 O Congress of History of San Diego County
 O Historic State Board, San Diego
 O La Jolla Historical Society
 O Old Northern San Diego Historical Society
 O San Juan Capistrano Historical Society
 O Seal Beach Historical Society
 O Archeological Society, San Luis Obispo
 O Archeological Society, Santa Barbara County
 A Society for California Archeology-San Diego State U.
 A Society for California Archeology-Ca. Polytechnic
 A Society for California Archeology-U.C.L.A.
 A Society for California Archeology-Cal. State Fullerton
 O San Fernando Valley Archeology Society
 O Pacific Coast Archeology Society

O Archeology Research Association
 O Atascadero Historical Society-San Luis Obispo
 O San Luis Obispo County Historical Society
 O Carpinteria Valley Historical Society
 O Historical Society of Centinela
 O Historical Landmarks Advisory Committee-L.A.
 O Cultural Heritage Board-L.A.
 O American Historical Society-L.A.
 O Treasure of El Camino Real-Atascadero, Ca
 O Landmark Advisory Committee-Santa Barbara
 O Save Our Heritage Organization-La Mesa, Ca
 O San Diego Historical Days Association
 O Historical Shrine Foundations of San Diego, Ca
 O Coronado Historical Association, Inc.
 O Serra Museum Library and Tower Gallery-San Diego
 O Long Beach Historical Society
 O Ventura County Historical Society
 O Orange County Historical Society
 O Laguna Community Historical Society
 O Historical Society of Southern California
 O Costa Mesa Historical Society
 O South Bay Historical Society
 O San Luis Rey Historical Society
 O Reno del Mar Polar, Santa Barbara
 O Fountain Valley Historical Society
 O El Pueblo de Los Angeles
 O Governor Pio Pico Mansion Society-Whittier, Ca
 O Central California Archeological Foundation
 O Conejo Valley Historical Society
 O Maritime Museum Association-San Diego, Ca
 O Maritime Research Society-San Diego, Ca
 O The Westerner-San Diego, Ca
 A Cypress College Local History Association
 O Goleta Valley Historical Society
 S State Office of Historical Preservation
 Co Board of Supervisors-San Luis Obispo County
 L Mayor, City of Morro Bay
 L Mayor, City of San Luis Obispo
 L Mayor, Grover City
 L Mayor, Pismo Beach
 S California Coastal Commission
 Int Government of Mexico
 F Department of Energy
 I San Diego Gas and Electric
 I Union Oil Company
 I Atlantic Richfield Company
 I Sea World-San Diego
 I Chevron Shipping Company

DATEITEM

February 10, 1977	Invitational letter mailed to appropriate Federal, State and local governments, and small or special interest groups, to participate in ES format formation and general orientation. Attendance: Fair to poor. Participation viewed by many invitees on tract approval of OCS leasing.
February 15, 1977	Air quality aspects of DES discussed with Ventura County APCD.
February 15, 1977	POCS Office Manager met with San Diego Mayor's Quality of Life subcommittee; i.e. Offshore Oil Committee. Presented the roles of BLM and various other Federal agencies in offshore development.
February 25, 1977	a. Invitational letter to Western Oil and Gas Association soliciting their input to DES preparation. b. Speaking engagement: Environmental Assessment Chief presented "OCS Development and Impact on Channel Counties" to League of California Cities.
February 28, 1977	POCS Office Fishery Biologist conducted an all-day meeting with the Marine Advisor, UCSD, and 30 local fishermen of the San Diego area. Purpose of the meeting was to acquire major fishing ground definition and areas of concern. Two primary areas were the 9-mile Bank (Coronada Escarpment) and Cortes-Tanner Banks. Some felt the Cortes Bank served as a "seed" area providing recruitment to fish stocks of the Southern California area as a whole. Fishermen expressed willingness to help identify possible use conflict areas as a result of meeting.
February 28 thru March 4 May 25, 1977	POCS Office Environmental Assessment Team conducted a series of five workshops to outline BLM approach, structure, and format of the ES. Workshops were held in San Luis Obispo, Santa Barbara, Ventura, Los Angeles, and San Diego Counties. Invitees included representatives from Federal, State and local governments as well as special interest groups. Participants were encouraged to make recommendations not only to ES development, but to make content proposals for

upcoming models and studies in support of ES development. Participants were given in-depth briefings on all models and studies to enable them to make constructive suggestions and recommendations. Discipline contacts were established for follow-up meetings on a one-to-one basis. Topics covered included the economic forecast models, both inter- and intra-county; oil spill trajectory model, air quality study, archeological survey study, and cumulative impacts. Of the 109 organizational invitations extended, 61 individuals attended. (Many absences were considered a boycott as evidenced by newspaper articles.)

March 21, 1977	Director, BLM met San Diego County Supervisor, Mr. Roger Hedgecock, regarding County's concerns on OCS Lease Sale.
March 22, 1978	Meeting held with Santa Barbara County consultant, discussed County's comments on Chapter I & II of PDES.
March 28, 1977	POCS Office ES Coordinates met with State's Division of Oil and Gas to obtain their veiwpoint on transportation scenarios of Lease-Sale oil.
April 13, 1977	Three POCS Office personnel met with County Planning Organization members of San Diego to discuss economic and water quality models.
April 15, 1977	Telephone contact with American Embassy in Mexico City: clarification of data from Mexico needed for ES.
April 25, 1977	Air Quality Study contract awarded to AeroVironment of Pasadena.
April 28, 1977 (& May 2, 1977)	Letters to Archeological and Historic organizations soliciting cultural resource data for ES input.
April 29, 1977	Letters to San Luis Obispo County and cities inviting participation in public meeting regarding Environmental Assessment process for DES.
May 5, 1977	Invitations to APCD's to attend Public meeting to review and discuss air quality study Contractor's approach for study.

May 11, 1977 Letters to Mexican officials requesting specific data for DES preparation.

May 12, 1977 Invitations mailed to San Luis Obispo fishing interest groups to attend May 25th public meeting on EA process.

May 23, 1977 Air Quality Symposium held to review and discuss scope of air quality contract study awarded to Aero-Vironment, Inc. of Pasadena, California. Meeting also solicited comments and recommendations prior to work commencement by Contractor on study format. Invitees included five Air Pollution Control District representatives from Santa Barbara, Ventura, San Luis Obispo, Orange, and San Diego Counties. Additionally, the Southern California APCD, along with Santa Barbara's Office of Environmental Quality, San Diego's Comprehensive Planning Organization, the State's Coastal Commission Office-Office of Planning and Research-Air Resources Board, Region IX EPA and Western Oil and Gas Association representatives were also asked to participate. Of the twelve organizational invitations, eight were in attendance.

May 31, 1977 Contract for Archeological Study awarded to Science Applications, Inc.

October 1 thru 31, 1977 State Office of Planning and Research (OPR) responded to the Draft Air Quality Study Report. Response reflected sincere appreciation for BLM coordination and review opportunity. Criticism centered around assumption of types of oil in analysis, appraisal of low to high ozone level days, and assumptions under Mitigation Measures.

November 9 and 10, 1977 Invited State OPR, local government agencies, and special interest groups to attend review sessions for Chapter I and II of the Preliminary DES, December 7 thru 21, 1977.

December 6, 1977 Furnished PDES Chapters I and II to State and San Diego County.

December 13, 1977 Meeting held with State OPR to set up future meeting for PDES Chapters I and II review.

March 7, 1977 Meeting conducted as follow-up to December 13th arrangement. Attendees included State OPR, EPA, San Diego-Orange-Los Angeles-Ventura-and Santa Barbara counties and other State agencies. Briefing was given on the Lease-Sale perspective relative to National leasing schedule. Area of concern focused primarily on the Air Quality Study report. Other topics included disposition of California Air Resources Board's comments on Air Quality Study. (Given to Contractor); treatment of endangered species in ES; LNG status, and Sale No. 35 monitoring studies.

March 22, 1978 Environmental Assessment Division Chief and ES coordinator met with Mr. Pat Heffernan, consultant to Santa Barbara County. Purpose of meeting was to discuss Santa Barbara's review comments of PDES Chapters I and II. EA Manager presented alternatives to the proposed sale to be discussed in the ES. Lease stipulations were discussed and where proposed stipulations would appear in Draft ES (Alternative Section) Mr. Heffernan expressed the need for enforced vessel management in Santa Barbara Channel with EA manager. Manager said he will coordinate with U.S. Coast Guard.

Pipeline alternative was discussed along with the question of pipeline modeling. Additionally, the estimates of Federal Grants lost by Santa Barbara due to Federal OCS exceedance of air quality standards was discussed. Mr. Emmrich, POCS Economist, advised that that information should be included in the Secretarial Issue Document. Concern as to possible military installation moving was expressed with follow on assurance that military had no problem. EA Manager said he would contact Professor William Samarac, per Mr. Heffernan's request, regarding possible mitigating measures for protecting whales from oil spill. Discussion of elimination of some foreign crude due to Sale No. 48 oil was suggested with POCS Office concurrence.

June 16, 1968 Furnished PDES Chapters III through VIII to State and local governments and interest groups.

August 31, 1978 Draft Environmental Statement for proposed OCS Sale No. 48 was released to the public for comment.

2. Comments Received on PDES Chapters I through VIII

The following groups submitted comments on PDES Chapters III through VIII. The comments received were evaluated and considered in the preparation of the Draft ES.

- Comprehensive Planning Organization, Director, Intergovernmental Planning Organization, San Diego, California
- County of San Diego, Integrated Planning Office
- County of San Diego, Environmental Analysis Division
- County of San Diego, Environmental Quality Division
- Get Oil Out, Inc., Santa Barbara, California
- Resources, Venice, California
- Texaco Inc. Producing Department, Los Angeles, California
- Southern California Gas Co., Los Angeles, California
- County of Santa Barbara, Dept. of Environmental Resources
- Exxon Company, USA, Houston, Texas
- USC Sea Grant
- National Marine Fisheries Service
- State of California
- U.S. Department of Energy
- U.S. Geological Survey
- U.S. Department of Transportation, U.S. Coast Guard
- U.S. Department of the Air Force
- County of Ventura
- Frank Donehue, Ralf Hazard- Fishermen
- U.S. Fish and Wildlife Service
- Shell Oil Company, Houston, Texas

B. Comments Received on the Draft Environmental Statement and BLM Responses to Comments.

The following persons and organizations submitted comments on the Draft ES. The comments, as they were received, and the BLM responses are included in this section.

California Coastal Commission
Comprehensive Planning Organization of the San Diego Region
Chevron U.S.A. Inc., Environmental Affairs
City of Laguna Beach - John E. McDowell, Mayor
City of Newport Beach - Paul Rykoff, Mayor
County of Orange, Board of Supervisors - Thomas F. Riley,
Chairman
County of San Diego, Board of Supervisors
County of San Diego, Integrated Planning Office
County of Santa Barbara
Department of Environmental Resources
County Board of Supervisors
Department of Planning
Air Pollution Control District
Petroleum Department
County of Ventura, Board of Supervisors - Edwin A. Jones,
Chairman
Department of the Army, Los Angeles District, Corps of
Engineers
Department of the Navy, Office of the Secretary
Department of Transportation, United States Coast Guard
Exxon Company, U.S.A., Production Department, Western Division
International Bird Rescue Research Center
John C. Ljubenkov, University of Southern California,
Department of Biological Sciences
Marine Mammal Commission
Richard A. Nordsiek, El Camino Research
Ogle Petroleum Inc.
South Coast Air Quality Management District
Southern California Association of Governments
Southern California Coastal Water Research Project
Shell Oil Company
David D. Smith
State of California, The Resources Agency
Air Resources Board
State Lands Commission
State Water Resources Control Board
Division of Mines and Geology
Solid Waste Management Board
Department of Fish and Game
Department of Parks and Recreation
Division of Oil and Gas

United States Department of Commerce

Maritime Administration

National Oceanic and Atmospheric Administration

United States Department of the Interior, Bureau of Mines

United States Department of the Interior, Fish and Wildlife
Service

United States Department of the Interior, Geological Survey

United States Department of the Interior, Heritage Conser-
vation and Recreation Service

United States Environmental Protection Agency

COUNTY OF SANTA BARBARA

ALBERT F. REYNOLDS
Director

105 E. Anapamu St.
Santa Barbara, Calif. 93101
Telephone 966-1611



DEPARTMENT OF ENVIRONMENTAL RESOURCES

BLM Hearing Officer

OCS Lease Sale 48 DEIS

Lobero Theatre

Santa Barbara, Ca. 93101

Mr. Hearing Officer:

My name is Albert F. Reynolds. I am the Director of the Department of Environmental Resources for the County of Santa Barbara. I have been authorized by the Board of Supervisors of Santa Barbara County to present the County's overall comments on the OCS Lease Sale 48 Draft EIS.

My testimony comprises the following: a letter to BLM Director Frank Gregg signed by Board Chairman Robert Kallman; a summary statement of County concerns with the Draft EIS compiled with the assistance of affected County departments, and County's OCS consultant, Mr. Patrick Heffernan, and air quality consultant Richard Nordsieck, who are both present today to answer any questions you may have; and the County's detailed comments on the Draft EIS which I will hand you for inclusion in the record of these proceedings but will not read in full in the

October 23, 1978

interest of time. I will be followed by Mr. John English, County Director of Air Pollution Control who will address one of the issues of greatest concern to us in this Draft EIS, air quality.

The Draft Environmental Statement for proposed OCS Lease Sale No. 48 is disappointing both in tone and content, especially after two years of input and assistance to the Pacific Outer Continental Shelf Office of the Bureau of Land Management from Santa Barbara and other counties, the State of California, and various citizens and environmental organizations. Santa Barbara County, like others, has contributed a significant amount of time and resources to the BLM's environmental review process, and now feels that much of this contribution was not seriously considered in the DES. Santa Barbara County hopes that this testimony today and the comments submitted in writing by the County will assist in the correction of the deficiencies of the DES and produce an FES that contains a full and fair portrayal of the costs of development of Sale 48, should the lease occur.

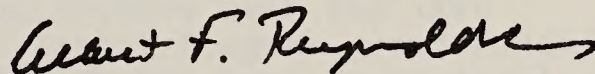
During the two years or more that this sale has been under review, Santa Barbara County has made a number of requests to the Department of Interior (DOI) and to the BLM for changes in policy and operations to improve the management of the nation's continental shelf resources. A summary of those requests and the responses they have received is attached.

Unfortunately, as the summary shows, despite promises of cooperation and action from the DOI, little progress has been made toward democratic and meaningful nomination and environmental review procedures, and toward local and state participation in the management of the resources off their shores. As a result of this lack of response to state and local

October 23, 1978

requests for consideration of their input, this DES is biased in tone and in conclusions toward the same goal of "development at any cost to the state and local areas and the environment" that has been the case for the last decade of OCS development in Federal waters offshore California. The DES downplays environmental hazards and sidesteps important issues such as air quality degradation. It fails to compare the environmental and fiscal impacts of the sale to the benefits of the 35 days of national oil supply predicted to lie in the sale area. The DES goes to great lengths to criticize the alternatives and stipulations recommended by Santa Barbara County and others, and yet gives only lip service to mitigation measures available to the DOI. It frequently demonstrates a failure to obtain the needed basic information for impact assessment, listing unknown impacts deceptively as "low" or "minor". The specific comments submitted refer to those sections of the DES concerned with the Santa Barbara Channel, or with larger issues that are of concern to the County. It should be recalled in reviewing comments on the impacts of development of the Channel area that it is projected to hold only 15 days of national oil consumption, based on present use rates.

Respectfully submitted,

Albert F. Reynolds
Director

AFR:DV:bh

attachments:

October 23, 1978 letter from Santa Barbara County Board of Supervisors
to Frank Gregg

Santa Barbara County Summary Comments OCS Lease Sale 48 DES

Air Quality Impact Analysis by El Camino Research

October 23, 1978

Santa Barbara County Specific Comments:

Department of Environmental Resources

Planning Department

APCD

Petroleum Department

ROBERT L. KALLMAN
Chairman
Second District
DAVID YAGER
Vice Chairman
First District
WILLIAM B. WALLACE
Third District
ROBERT L. HEDLUND
Fourth District
HARRELL FLETCHER
Fifth District



HOWARD C. ME
County Clerk-Rec
and Ex-Off
Clerk of th
Board of Super

Telephone (805) 9
Ext. 271

COUNTY OF SANTA BARBARA

BOARD OF SUPERVISORS
105 East Anapamu Street
Santa Barbara, California 93101

October 23, 1978

Mr. Frank Gregg, Director
Bureau of Land Management
Washington, D.C.

Dear Mr. Gregg:

The attached comments on the Lease Sale 48 Draft EIS have been approved by this Board for entry into the record of BLM's public hearing October 23, 1978, at the Lobero Theatre in Santa Barbara.

I wish to emphasize this County's disappointment with BLM's lack of response in this Draft EIS to the County of Santa Barbara's documented concerns about the safety and environmental consequences of the proposed sale, particularly in air quality. Continuing assurances to the contrary by the Secretary of the Interior that our views would receive responsible consideration make it all the more difficult for us to accept the rejection or ignoring of our comments without adequate explanation.

BLM's performance in the Draft EIS, when viewed with the prior rejection of our negative nominations and requests for delay - not only on Sale 48 but also on Sale 53 which also affects this County - lead us to question the validity of the present OCS leasing process. We cannot responsibly expend time and money on a federal procedure in which we are encouraged to give our views so they can be taken into account, only to have those views summarily dismissed. We estimate that we have expended some \$5,000 in County staff time on OCS leasing matters over the last two years, plus \$17,600 in Coastal Energy Impact Program grant funds. This is a clear waste of tax money if our work has been to no avail.

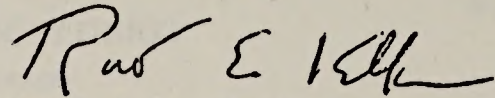
The County of Santa Barbara will be significantly and adversely affected by OCS leasing. We cannot accept bland assurances that the lease sales may never be held when our concerns are being disregarded at every step in the leasing process. We call on you

Mr. Frank Gregg
October 23, 1978

Page 2

to re-examine BLM OCS leasing procedures as a whole and to require your staff to carry out existing legal mandates and personal commitments by the Secretary of the Interior to respond to local concerns, starting with the Final EIS on Lease Sale 48.

Sincerely,



Robert E. Kallman
Chairman, Board of Supervisors
County of Santa Barbara

REK:AFR:bh

SANTA BARBARA COUNTY

SUMMARY COMMENTS

LEASE SALE 48 DES

- [1] Failure to respond to local input. The DES fails to respond formally to the comments submitted by the Board of Supervisors on the final five chapters of the PDES. Furthermore, the criticism of the air quality and other sections of the PDES have been ignored in the DES. The selection of tracts in the Channel with no regard for environmental sensitivity demonstrated a lack of consideration of local and state negative nominations. This failure to consider outside input has become so serious in the OCS program that the GAO identified it as a major problem in a recent report, cited below. Additionally, the lease stipulations submitted by the county were rejected by the BLM, frequently on spurious and non-factual grounds, or because they were characterized as duplicating existing regulations. The BLM was informed by the County when the proposed stipulations were submitted that the ability of the USGS Oil and Gas Supervisor to waive Operating Orders without notification of the state and local agencies, was the basis for the stipulations which cannot be so waived. This was ignored by the BLM in their rejection of the proposed stipulations. One of the County's proposed stipulations summarily dismissed appears on page 1408 of the DES. It proposes monitoring of air and water quality. Another appears on page 1419 requiring best achievable air pollution control technology on facilities in OCS waters. It is not enough for BLM to say that "a decision on the applicability of air quality standards in international waters has not been made." We believe that BLM and DOI have an obligation under the recently enacted amendments to the OCS Lands Act to promulgate regulations to require such technology. We would like to see such an acknowledgement in the DES.

A listing of County inputs and BLM and DOI responses is included in Detailed County Comments.

[2] Inadequate Air Quality Analysis

The Aerovironment model is inadequate for air quality analysis of the proposed Lease Sale. Due to the scope of the proposed Lease Sale and its potentially significant effects on local air quality a three dimensional Eulerian grid model with photochemistry is required. During the earliest stages of PDES air quality evaluation Santa Barbara County protested the inadequate air quality analysis. BLM agreed to conduct additional air quality work, requested and received a listing of suitable consultants from Santa Barbara County. Strangely, no further air quality analysis was performed.

In the Aerovironment study impacts are understated for several reasons including the use of 10 km grid squares on the OCS resulting in the early and unrealistic dilution of offshore emissions, miscalibration of the model due to reliance on erroneous readings from a Santa Barbara monitoring station, and other reasons which are discussed in an attached critique of the Aerovironment study by Richard Nordsieck, air quality consultant.

The DES goes beyond this level of inadequacy by ignoring the fact that the coastal counties are non-attainment areas. Because section 176 of

the Clean Air Act requires sanctions be levied against AQMD's that cannot meet the NAAQS by 1981, and further allows the invalidation of Federal permits that do not meet the requirements of the State Implementation Plan, the failure to document or even recognize the non-attainment status of counties has serious legal implications. By ignoring the non-attainment status of counties, the BLM avoids the issue of addition to existing pollution levels will result in offset costs or sanctions. By not modeling the increment that Sale 48 development will add to each AQMD's pollution load, the DES avoids the real impacts. By using arbitrary regions for modeling concentrations of new emissions, rather than county boundaries, the BLM is able to project minor regional increases in emissions and concentrations of pollution constituents region wide, when in fact individual measuring stations in each district may record violations of standards.

The air quality analysis does not discuss New Source Review required for OCS Developments under Clean Air Act amendments. It does not discuss the non-attainment status of local areas with respect to NAAQS, and no mitigation measures are discussed (for instance vapor recovery or a land pipeline).

In summary the Air Quality analysis represents the greatest serious weakness in the DES which cannot serve to comply with NEPA in its present form.

[3] Inadequate and biased consideration of onshore pipeline scenario.

The discussion of the land pipeline consists of a few pages in the Alternatives section to casually dismiss the environmental advantages of such a scheme and exaggerate associated problems. The discussion inflates the cost of the pipeline by several million dollars. It attributes tankering out of Los Angeles to San Francisco to the pipeline scenario which may be unnecessary if negotiations are made to ship oil from Ventura through surplus capacity in San Joaquin Valley pipelines to San Francisco or through the SOHIO pipeline to Texas refineries. The FES should expand the analysis of the onshore crude oil pipeline and include air quality modeling. This discussion should be moved to the mitigation measures section since it is not an "alternative" to the proposed Lease Sale.

The most up-to-date information from Hallanger Engineers 10/6/78 report should be used to describe the onshore pipeline option. Both Santa Barbara County and the State of California have endorsed the pipeline scenario. All references to opposition from these agencies are inaccurate and should be deleted.

[4] Failure of the DES to relate the sale's predicted supply to the national oil and gas supply need. President Carter disavowed orash energy supply programs in his National Energy Policy message in April of 1977. He called the costs of such programs, of which this lease sale is one, too expensive in terms of required capital investment and environmental damages -- especially to the producing states. His policy recognized the West Coast oil surplus and called for action to curtail production of oil on the West Coast, such as limitation and curtailment of production of NPR at Elk Hills. Lease Sale 48 contradicts the President's policy. No reference is made to that message and the President's National Energy Policy in the DES and no attempt is made to relate the sale to the national energy need, a persistent request of this county and others. The DES also ignores Secretary of Interior Andrus's announced policy of keying lease schedules to nation needs, (DOI press release, 8/13/77).

[5] Failure to adequately address the need for the Sale. While the DES waves the banner of the federal OCS leasing program and Project Independence, it fails to fully examine the West Coast oil surplus.

The Department of Commerce has just announced (Federal Register, 18 August) that it will issue licenses to export California residual fuel oil--citing a surplus of this commodity in our state. 30% - 70% of each barrel of S. B. Channel crude will remain as residual oil after refining. This means, of course, that some, and perhaps most, of the oil pumped from the Santa Barbara Channel will be exported--presumably to Japan.

The SOHIO pipeline will be inadequate to handle all West Coast and Alaskan crude requiring tankering through the Panama Canal with associated air pollution and oil spill risks. This glut results in the shutting in of California onshore production and Elk Hills reserves. Secretary Andrus has cancelled existing leases due to non-diligence in development. In the face of this dilemma the DES glibly states that additional production on the west coast OCS is in the best interest of the nation. A closer look at the facts is clearly needed in the "No project alternative".

- [6] Conservation and the need for Sale 48. The 4.9% reduction in energy used accomplished by the nation in 1974 resulted in a savings of one million barrels of oil a day, three times the estimated production of the sale area. Yet the DES fails to consider conservation seriously in the Alternatives section and never points out that a national conservation program could more than compensate for any oil forgone temporarily from withdrawing this Sale.
- [7] Failure to summarize the very serious impacts of Sale 48 on the Santa Barbara Channel and contrast this to the expected oil and gas production. The 315 million barrels of oil estimated by the USGS to lie beneath the Channel region represents a mere 15 days of national oil supply at present consumption rates. Time and time again, the text of the DES points out that the worst impacts of various operations will occur in the Channel. Scattered through the DES is a description of the richness and uniqueness of the Channel region. This includes over 300 species of birds, 33 species of pinnepeds, 8 species of whales, 25 rare and endangered species, and a unique and heavily used commercial and recreational fishing and diving area. The addition of 12 platforms, 33 subsea completions, 2 OS&T's, large and small oil ^{a, 3} spills, increased tanker and boat

nature and character of the Channel for the worst. This is not made clear in the DES, nor is the trade-off between 15 days of national oil consumption and the possible destruction and certain degradation of an irreplaceable national marine resource ever drawn.

- [8] Transition Zone. The Point Conception-Point Arguello Biogeographic Transition zone is well documented and well-known to the BLM staff (as evidenced by BLM response to comments from Santa Barbara County) and extends into the Sale areas. Yet it is never mentioned in the DES.
- [9] No comparison of benefits and costs. The purpose of a DES is to display the impacts of a proposed major Federal action, in a manner useful for informed decision-making. Impacts are scattered throughout the DES, sometimes tabulated and clearly stated, but frequently not, and hidden in appendices. The occasional clear statements and tables of impacts that do appear are overwhelmed by masses of qualifications and basic data. Impacts and tradeoffs must be summarized by county and clearly compared to the expected value of the expected oil and gas production.

- [10] Conflicts between USCG TSS (Traffic Separation Schemes) Sea Lanes and Platform Development. The discussion of conflicts between ocean going vessels and fixed production platforms in LS 48 tracts in and adjacent to the sea lanes is inadequate. It is suggested that the Coast Guard will not permit such developments. The fact that the Shell Beta Unit Project is going forward between shipping lanes at San Pedro is representative of the weight the Coast Guard policies carry with private oil companies. The greatly increased probability and consequences of a collision involving a platform adjacent to or between the sea lanes must be fully analyzed in the FES or an alternative Lease Sale analyzed excluding all tracts in, adjacent to, or between the sea lanes.
- [11] Failure to address technological problems associated with deepwater resource recovery. Many of the tracts considered in the LS 48 DES are in excess of 2,000 feet deep. Santa Barbara County questions the existence of surface or even operational sub-sea technology to operate at these depths. The FES should specifically address this issue. If such technology exists it should be demonstrated in the FES; if not, an alternative sale deleting all deepwater tracts should be analyzed in the FES.
- [12] Failure to recognize limitations of oil spill cleanup equipment. The DES consistently relies upon Clean Seas Inc. and the state of spill cleanup technology to mitigate the certain spills predicted by the oil spill model, regardless of years of evidence and protestations from local and state agencies to the contrary.

The DES states that oil spill containment equipment in the Channel is the "best in the world." The fact that it is the best does not mean that it is effective nor is it impact assessment as required by NEPA. Recent oil spills (i.e. El Estero Slough Mouth) have demonstrated to the contrary that the containment capability is totally ineffective in the surf zone and can only function in the ideal conditions of a calm sea with no swell. Such conditions cannot be guaranteed in the event of an oil spill. The FES should document this fact, display honestly the disparity between the technologies of offshore oil development and marine oil spill cleanup and address its implications for oil spill damage to coastal resources.

- [13] Projects and Proposals. The description of development projects projected for the 1980's in the affected areas of Lease Sale 48 is incomplete. No reference is made to two specific projects resulting from existing lease sales: the proposed installation of Platform Grace (and necessary expansion of related onshore facilities) and the recently announced plans of a Southern California Gas Co. affiliate to construct a gas processing facility at Las Flores to process gas produced in the Santa Ynez Unit. Are these projects incorporated into the projected impacts? No reference is made to the Missile-X project at Vandenberg Air Force Base and the resulting impacts.

Information on the proposed LNG facility at Pt. Conception is not only out of date in terms of the status of the project, but appears to be based on preliminary reports by Dames and Moore. A considerable

amount of more detailed and current information has been generated on the project through state and federal reports.

- [14] Deceptive assumptions regarding impacts. The document states that the impacts of activities that are unknown are insignificant or minor. This is most evident in the environmental impact matrices used in Appendix F., where the text states that the impacts of construction and pipelaying near the breeding and nesting areas of marine birds and the pupping areas of marine mammals is unknown, but the matrix lists the impacts as low-or minor. This is a consistent theme in the DES and appears to be a deliberate strategy to downplay the environmental effects of various development activities. Assuming that unknown impacts are minor is deceptive. They should be noted as "unknown" and the necessary research conducted to determine the impacts before the FES is released.

Summary and Conclusions. Santa Barbara County has submitted technical comments based on a line by line review of the DES. These include specific changes needed to make the FES legally adequate as required by NEPA. In summary, the major changes needed are:

- [15] 1. Revision of the air quality impacts sections through additional data collection on Santa Barbara meteorology, and modeling for incremental air quality degradation at the local AQMD level.
- [16] 2. Modeling of the proposed and endorsed onshore pipeline as a transportation scenario.
- [17] 3. Inclusion of the Santa Barbara County proposed Lease Stipulations in the recommended mitigation measures.

- [18] 4. Research necessary to predict the "unknown" impacts of various operations, especially of development within bird and marine mammal foraging areas and near nesting and pupping ground.
- [19] 5. Comparision of the environmental and fiscal costs of the development of the Sale 48 area with the benefits of the 35 days of oil it is projected to supply.
- [20] 6. Full and detailed examination of the No-Project alternative.
- [21] 7. Description of and recommendation of an environmental monitoring program for the Channel as a part of the sale, if it is held.
- [22] 8. Honest statement of the capability of west coast spill cleanup capacity relative to the conditions under which it may have to be deployed.
- [23] 9. Evidence of the consideration of local and state input into the nomination and environmental review process.
- [24] 10. Concise county summaries of impacts.
- [25] Meeting these requests will also meet the requirements of NEPA, and will require a delay in the release of the FES to provide time for the necessary research and analysis. This delay period is estimated to be no less than one year. Such a delay would not now be necessary if the comments and requests of the County, the State, and other counties and environmental organizations had been heeded by the BLM and the requested research and assessment done prior to release of the DES. However, in view of the present and future oil surplus on the west coast, such a delay in the FES and resultant delay in the sale and eventual development will not harm the nation's supply of oil , and will contribute to the nation's long term economic security.

A BRIEF REVIEW OF THE AIR QUALITY IMPACT ANALYSIS
FOR SANTA BARBARA COUNTY FOUND IN THE
DRAFT ENVIRONMENTAL STATEMENT FOR OCS SALE NO. 48

El Camino Research (R. A. Nordsieck) has been asked to comment on the adequacy of the air quality impact analyses for Santa Barbara County presented in the Draft Environmental Statement (DES) for OCS Sale No. 48. This review is necessarily brief and no attempt has been made to check individual calculations or obtain cited references (except for the basic AeroVironment Final Report) not already in hand. Emissions, Air Quality, and meteorological data were reviewed in general based on personal experience with the area and operations involved. The air quality models employed and methods of application were also examined. The following paragraphs include some general comments on the analysis as a whole, followed by specific comments grouped by pollutant type.

[26] General Comments

From the outset, a "project" such as OCS Sale No. 48 is very difficult to analyze in any precise manner because no specific information as to equipment or platform locations will be available until the tracts are actually leased and exploratory drilling is under way. Thus, a great deal of judgement had to be exercised in selecting scenarios for evaluation. Because it was necessary to make many assumptions in order to define what would actually be evaluated, the resulting impacts are necessarily imprecise and can only be viewed in a relative manner. For the most part, the DES has selected worst-case assumptions. In particular, it is stated that "emissions are the sums of emissions from all sources even though, in reality, not all sources would be operational simultaneously," and, "when emissions rates were not constant, the maximum hourly emission rate was used." Worst-case background air pollutant concentrations in 1986 were obtained by

scaling maximum 1975 background levels by the 1986/1975 Emissions ratio for each pollutant. Worst-case meteorological conditions were modeled for the inert pollutant analyses, however as noted below, the mixing conditions used in the photochemical modeling were not worst-case.

Specific Comments

Inert Pollutants

[27]

Although the EPA models employed do incorporate mixing depth, they cannot account for the effects of rough terrain, and are therefore unable to model the trapping of pollutants against the coastal mountains. Hence, some of the inert pollutant impacts in onshore areas may be understated.

The worst-case, 24-hour meteorology selected for inert pollutants has 8 hours of offshore flow followed by 16 hours of onshore flow, such as might occur following a Santa Ana condition. While this is certainly an excellent candidate for worst-case meteorology, the gaussian plume models used to evaluate its impacts are not capable of simulating the effects of offshore buildup and subsequent return of that pollutant buildup with the flow reversal. Thus, if these pollutant buildup situations actually do occur as suspected, the resulting impacts would be significantly higher than predicted in the DES. At this time, a proper evaluation would require use of a numerical grid model encompassing the area of suspected pollutant buildup.

[28] CO

The short-term impacts of inert pollutants, in particular 8-hour average CO, should have been evaluated for the induced traffic in Santa Barbara (i.e. added VMT due to added population). A preliminary estimate indicates that the project would cause (indirectly) about a 1% increase in measured CO in 1986-1987, tending to delay slightly attainment of the CO standard on the South Coast.

In volume 2, page 1038, under the CO paragraph, the Federal 8-hour standard is 9 ppm (not 10 ppm).

[29] NO_x

NO_x really should not be analyzed as an inert pollutant without accounting for the limits on conversion of NO to NO₂. The assumption that all NO_x emissions are NO₂ is usually very conservative, especially in areas where accompanying O₃ levels are well below 0.25 ppm. The primary anthropogenic sources of NO_x emissions are high temperature combustion processes. The resulting emissions are at least 90-95% nitric oxide (NO) which must be oxidized to form NO₂. The only rapid oxidizer normally found in the atmosphere is ozone (O₃). Thus, the amount of NO which is readily converted to NO₂ is limited by the available ozone background. In fact, the peak NO₂ level in the center of a plume of NO_x cannot exceed the sum of the NO₂ + O₃ background concentrations. As they stand, the NO₂ results shown in the inert pollutants portion of the DES are probably too conservative to be of much value. The NO₂ impacts shown later in the photochemical modeling section are very low in all cases. A detailed analysis of the photochemical model runs might yield an estimate of the NO-to-NO₂ conversion fraction which could be used to adjust the output of the inert pollutant models.

[30] Photochemical Pollutants

Ozone (O₃) and nitrogen dioxide (NO₂) were evaluated as photochemical pollutants in the DES, but the scenarios selected were intended to evaluate O₃ impacts and the reader was directed to the inert pollutants section for the worst case NO₂ impacts (discussed above).

The REMZ model employed in the DES is a variable-volume, moving box model with photochemistry. Diffusive pollutant exchange with adjacent parcels on either side is calculated based on the estimated lateral stability. This type of model is most useful for doing rapid evaluations of individual point sources, but like most trajectory models, it is difficult to apply to cases involving a complex of new sources.

Ideally such cases should be evaluated using a full 3-dimensional Eulerian grid model with photochemistry, however the expenses involved are considerably higher.

[31] O₃

The main comment to be made on the O₃ impacts calculated in the DES is that they are unbelievably low in view of the magnitudes of the hydrocarbon emissions from tanker loading operations tabulated in Table III.D.1.a-5 (Vol. 2, page 1026). The author's experience in similar projects, using both grid and trajectory models, would indicate O₃ increments at least an order of magnitude larger than those shown in Table III. D.3.b-1 (Vol. 2, page 1081). The reason for the low predicted impacts is not immediately obvious, but two factors which would contribute to reduced ozone sensitivity are (1) the use of a 10 x 10 km grid for the offshore project emissions, and (2) the assumption of neutral stability for the over-water portions of the scenario trajectories. With such a large source grid, the project emissions are greatly diluted before they enter the photochemical calculations. The effect of the stability level in REMZ is to govern the loss of pollutants out of the sides of the air parcel when adjacent air is relatively clean. Atmospheric stability over the ocean tends to be stable or very stable, especially in the summer. Hence, the specification of neutral stability, while conservative for a summer afternoon on land is far from being the worst case for a trajectory over water, and would result in excessive dilution of the hydrocarbon plume.

A third possibility is that the REMZ photochemistry has not been properly validated at the very high HC/NO_x ratios encountered in tanker loading scenarios. The smog chamber and atmospheric data used to validate the original REM, DIFKIN, and SAI photochemical models did not extend to these high ratios.

The DES states that the model was validated for a trajectory ending at 1600 hrs. in Santa Barbara on September 25, 1975. Table III D.3.a-2 (Vol. 2, page 1079) indicates a measured ozone level of 0.17 ppn for

that hour, however, our records show that the peak hourly average for that day was 0.19 ppm at State Street, 0.25 ppm at Cathedral Oaks and 0.25 ppm at Fairview in Goleta. The Santa Barbara APCD has recently noted that the 1972-1975 oxidant data taken at State Street may be invalid due to instrument problems. Since that instrument was replaced with an ozone monitor in 1976, the State Street data has been very comparable with the Cathedral Oaks and Fairview readings. Thus, the actual ozone level in Santa Barbara at 1600 hrs. on 9/25/75 was probably closer to 0.25 ppm as compared to the REMZ prediction of 0.18 ppm. With this correction, a review of the ozone validation results in Table III.D.3.a-2 (Vol. 2, page 1079) shows that the model predicted low in every case, by factors ranging from 16% in San Diego to 28% in Santa Barbara.

It is the opinion of the author that the above-noted factors (and possibly others which have been overlooked) could have combined to result in a significant understatement of the potential ozone impacts of the project.

[32] Analysis of Alternatives

If, in fact, the ozone impacts of the project as analyzed should be measured in parts per hundred million (pphm) rather than tenths of pphm, it then becomes important to seriously consider alternatives to tankering as the primary mode of transportation from the onshore processing facilities to the refineries. One important alternative which would substantially reduce fugitive hydrocarbon emissions is the construction of onshore pipeline transportation facilities which would also eliminate the other environmental risks associated with tankers (e.g. oil spills, collisions, stack emissions, etc.). This alternative is being actively investigated by the County of Santa Barbara in connection with oil production from OCS Sale 35 leases.

Richard A. Nordsieck
El Camino Research

SANTA BARBARA COUNTY
DEPARTMENT OF ENVIRONMENTAL RESOURCES
LEASE SALE 48 DES
SPECIFIC COMMENTS

Page No.
of DES

Comments

- [33] i3 Minor air quality degradation. This statement cannot be supported on the basis of the Aerovironment study. Santa Barbara County has formally objected to the use of the Aerovironment model which assigned emissions to 10 Km grid squares on the OCS, diffusing pollutants unrealistically and weakening the results so that the model could not demonstrate the occurrence (or non-occurrence) of localized episodes or exceedances of National Ambient Air Quality Standards.
- [34] iiB Alternative oil transportation methods. The proposed on-shore crude oil pipeline is not a project alternative, rather, a mitigation measure to the air quality degradation and oil spill risks of the proposed Lease Sale. The pipeline discussion should be expanded and moved to the mitigation measures section.
- [35] iiD "exotic" energy sources. Reference to solar and other newly accepted energy resources should not be termed "exotic." These sources are an acknowledged and integral part of the President's Energy Program.
- [36] iiE Alternative Lease Stipulations. The Lease stipulations are not alternatives to the project (an OCS Lease Sale), rather, mitigation measures which should be included in Section IV.

- [37] 1 Resource potential. The resource potential listed for the Santa Barbara Channel region is 315 million barrels of oil. It should be noted that this is approximately a 15 day national supply at current consumption rates. A breakdown of production rates by region is needed here.
- [38] 5-9 Pipeline. The onshore pipeline now under consideration by the Joint Industry-Government Working Pipeline Group is the only alternative endorsed by governmental agencies and required in legally binding permits, or undergoing feasibility studies. It should be considered here as an alternative transportation scenario for full modeling, not as an alternative to the proposed action. The USGS scenarios represent no one's opinion but that agency's and as such have no legal standing. Table I.A.2-3 should be amended accordingly, and a complete analysis undertaken in appropriate sections of the DES.
- [39] 9 What is the basis for the assumption of the number of platforms (15 most probable) in California?
- [40] 13 Stipulation. What does "areas of special biological interest" refer to?
- [41] 14 Negative nominations. Other negative nominations were submitted that were not tract-specific. These should have received full attention. Is this the case and how was it done?
- [42] 19 Issues. Paragraph 3 is incorrect. The POCS Office has been informed on numerous occasions by state and local agencies that the most important issue surrounding lease sale 48 is the high levels of air pollution it will generate.

[43]

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Transition Zone. The entire DES studiously avoids describing the Point Conception-Point Arguello Biogeographic Transition Zone, centered at Point Conception and extending south into the lease area. This is also an area of high environmental concern, as has been communicated to the POCS Office by the County of Santa Barbara and others. Also, BLM's environmental concern maps should be included in the DES for analysis.

[44]

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Economic considerations. There is no basis for the statement that OCS development will reduce foreign oil imports on the West Coast. The Indonesian oil imported into California is used primarily as boiler fuel to meet CARB sulfur regulations, and as such is not replaceable by the lower quality and higher sulfur OCS oil. There is also no basis for the assumption that the high sulfur oil imported from Alaska and from OCS wells can be refined in California. The findings of the California Energy Commission are that "West Coast refineries will still require imports of low sulfur, high gravity crude because of refinery capacity and petroleum product demand."

(1977 Biennial Report of the California Energy Resources Conservation and Development Commission, vol. 1, page 99). Total refining capacity at full is 1,965,000 as of 1-1-76. The 6-7-76 refinery use figures showed a 90% use factor of which 847,000 was imported (John Messer, State Lands Division, at meeting of Pipeline Working Group, 1-26-77) Byron Hilton, Operations Manager for Exxon, stated that the Benicia refinery can accept only 5000 bod of high sulfur low gravity Santa Ynez crude in the early 1985 season (Minutes, Pipeline Working Group, 1-11-77).

He reported that the price considerations make further expansion of the ability of that facility to refine high

sulfur oil doubtful. He also reported that Exxon cannot market any of the Santa Ynez crude to Los Angeles refineries and that the alternate is to export the high sulfur oil. The DOE has obtained permits to export present surplus high sulfur residual oil from California to Japan. Thus, the assumption that California refineries can accept further supplies of low gravity high sulfur oil is groundless and should be modified to reflect the reality of the surplus of this oil on the West Coast and the fact that OCS 48 production will contribute to that surplus.

- [45] 20 Economic considerations. This paragraph suggests that LS #48 crude is better able to be refined in California refineries than Alaskan crude due to "viscosity and sulfur content of Alaskan crude." In reality, Alaskan crude is less viscous and sulfurous than much Santa Barbara Channel crude and may be better suited for California's "sweet" refineries.
- [46] 21 State and local comments. There is no evidence to support the claim that comments of state and local government and environmental organizations received due consideration in the tract selection process of Sale 48. Santa Barbara County and others vigorously opposed tract selection especially in the Santa Barbara Channel. Secretary of the Interior Kleppe neither answered nor acknowledged Santa Barbara's comment on the nominations for Sale 48 and the present lease tract selection does not evidence consideration of those comments. Inclusion of negatively nominated tracts, despite repeated appeals and documentation of the environmental hazards associated with their development, is prima facie evidence that the BLM has not considered the comments and negative nominations of the people of the State of California and the County of Santa Barbara. (see letter from Board of Supervisors to the

Secretary of Interior, 2-25-77). The briefings listed in the DES were informational only and do not constitute participation.

- [47] 23 Ranking. The ranking and selection process described on page 23 lends credence to the persistent state and local claims that industry nominations received heavier weight than negative nominations: "Industry interest in the Channel and USGS resource estimates were strong arguments in favor of inclusion." Failure of the BLM to adequately consider state and local comments has been noted by the GAO in Opportunities to Resolve Some Basic Conflicts Over OCS Leasing and Development (3-16-78) pg.3; "There should be evidence that the needs, problems and concerns of these parties will be considered by Interior at all points..." no such evidence can be found in this document nor in the tract selection for Sale 48.

Mapping of the three categories of environmental concern showing their relationship to the final lease area should be included for analysis, a request made earlier by the County of Santa Barbara. The FES must contain a comparison of environmental concern maps, industry nominations, negative nominations, and USGS resource identification. Only in this way can any indication of consideration of state and local and private input be evident.

- [48] 25 Monitoring. The monitoring description on this page is welcome, but too vague to be useful. The GAO is "especially concerned by the absence of regulations and criteria governing monitoring of environmental changes in the lease areas (pg. 2, op. cit.) The GAO specifically includes local government among those who should participate in OCS decisions, including design and operation of monitoring programs. The county has long requested monitoring programs for the Channel and was

promised monitoring by a former Secretary of the Interior, a promise as yet unfulfilled. Santa Barabara County shares the GAO concerns, including:

- *how monitoring will be accomplished
- *how monitoring results should be used, and by whom
- *that parties will have access to monitoring data as a basis for informed decision making.

These questions should be answered in the FES. The mitigation sections of the FES will not be adequate until specific monitoring programs are described.

- [49] 28 2. "reduce dependence on foreign oil". Lease Sale #48 may not reduce dependence at all. Due to the present glut of oil on the West Coast due to ill-conceived plans to ship Alaskan crude to the West Coast, California onshore production has been shut-in, Elk Hills is under consideration to be shut-in, and agreements have been made to export crude to Japan! In addition, no mention is made of conservation, the backbone of Carter's Energy Plan.

If we will be more vulnerable to supply interruptions in the future it does not make sense to produce and consume oil at a maximum rate now only to diminish national reserves in the future, thereby, increasing our dependence on foreign oil markets.

- [50] 31 TSS lanes. The Traffic Separation Scheme of the USCG does not constitute regulation. Rule 10 of CG-169 specifically states that ships may decline to use the TSS lanes at their discretion.

- [51] 34 CCZMP consistency. California Coastal Zone Management Program has been upheld in U. S. District Court. Its implications for Lease Sale 48 development should be adequately addressed in the FES.

- [52] 38 Air quality. The air quality study by AeroVironment and used in the DES is not adequate for impact assessment, a fact made known to the BLM by the county and others. The DES should note that the BLM has agreed to further research on air quality impacts.
- [53] 44 Projects and proposals. Several significant projects have been left out. A detailed discussion of the Joint Industry Pipeline Working Group's onshore pipeline study (formal permit substance granted by the Arco Ellwood Onshore Treatment Plant Coastal Commission permit) should be included here. Platform Grace and associated pipelines and onshore plant modifications, So. Cal. Gas Co. Santa Ynez Unit Gas Plant in Las Flores Canyon, and Vandenberg's Missile X should also be discussed. The LNG analysis should be updated based on most recently available information.
- [54] 266 Whales. A map of the whale migration patterns of the Channel should be included at this point.
- [55] 328 Transition Zone. The Point Conception Transition Zone is conspicuous by its absence here.
- [56] 385 Santa Cruz Island. The description of Santa Cruz Island should note the purchase of a large portion of the island by the Nature Conservancy for a preserve.
- [57] 534 Southern California refinery capacity. The entire discussion of refinery capacity fails to address the very real problems of sulfur and viscosity limitations. California refineries cannot accept high sulfur asphaltic crude at the present time. If plans exist to increase this capacity to accept LS #48 crude this fact should be demonstrated specifically in the FES. If not, the West Coast crude surplus will only worsen.

[58] 544 Air quality and existing problems. The air quality section is totally inadequate for environmental impact assessment. The use of the environmental description from the AeroVironment study is perplexing in view of the overwhelming protests and evidence by the state and local agencies that the study used to model air impacts is based on inadequate data. The assumption in the DES (pg. i) that the sale and development will cause only minor air quality impact, after numerous comments to the contrary, can only be attributed to an attempt by the BLM to downplay the issue and avoid possible disqualification of permits under section 176 of the Clean Air Act. The release date of the FES should be delayed until additional studies promised by the POCS office are completed and the air quality impacts section rewritten. Section H,1 of this section is specifically inadequate because there is no mention of the fact that many coastal counties, including Santa Barbara, are non-attainment areas (documented in Board of Supervisors letter to Peter Tweedt, DOI, 2-28-78). The failure to identify non-attainment areas in this section appears to be an avoidance of the legal and fiscal impacts of any addition of pollutants to the air from any source, which can result in EPA sanctions. This section evidences awareness of the importance of the issue in documenting the exceedance of the NMHC standards (p. 564). There is no justification for failure to accurately outline the existing non-attainment areas and the legal consequences of non-attainment. The inadequacy of data for this section was explicitly recognized by the BLM on page 566 (paragraph 4), "...although lack of data at Santa Barabara makes trends difficult to recognize..." This lack of data has been documented by the county and by the Office of Planning and Research in correspondence with the BLM.

[59] 614 Oilspill equipment. While the DES recognizes that "no system or equipment has been developed which is 100% effective in controlling and removing pollution under all

weather and seas conditions," this section attempts to give the impression that spill cleanup capability is adequate. Mere cataloging of available equipment does not satisfy NEPA requirements. The operating capabilities of the equipment must be compared to the possible conditions under which it is likely to be deployed. Tanker accidents and spills frequently occur in rough seas, those beyond the capability of existing spill cleanup technology. Spill cleanup capability research is decades behind development technology. The inadequacy of the existing equipment must be detailed.

[60] 619 Oil spills. The statement on paragraph 3 that "unless a moderate oil spill occurred, this increased rate of decline would probably be undetectable" is unjustified. Chances of moderate oil spill damage are shown to be high in many areas, especially near the Channel Islands, indicating that the increase in the rate of decline will be detectable simply because of the high chance of spill damage.

[61] 620 SOHIO related Long Beach air quality degradation. If Long Beach oxidant emissions will increase up to "89.9%" due to three SOHIO tankers it seems peculiar that S.B. Channel tanker loading will have the insignificant effect attributed by the Aerovironment Study. This discrepancy casts further doubt on the credibility of the Lease Sale #48 air quality analysis.

- [62] 620 Ship traffic increase. The statement that "this increase in ship traffic is not particularly significant" is unfounded and unjustified. This is a 9% increase in traffic, and, as pointed out in the same paragraph, does increase the risk of spills significantly.
- [63] 620 Oil deficit. Although a nationwide deficit of oil exists it has been recognized that the US will never be self-sufficient in oil. The "deficit" represents that amount of oil this country imports to meet Clean Air Act standards and to support its extremely wasteful energy supply systems and transportation sector. To the degree this and other lease sales continue to make low-cost oil available to the US consumer (or more oil at any price) it will perpetuate the waste of a non-renewable resource and hasten eventual total dependence on foreign supplies for petrochemical feed stocks.
- [64] 649 "Interference with navigation." This means possible collisions with ships and should be so stated. Same is true for paragraphs "b" and "c". This should be noted on Table III.A. 3-1, requiring a change in the No's to Yes.
- [65] 653 "It is assumed that tanker or barge transportation will be utilized initially to bring produced oil to shore". This statement is not clear. Will oil be barged from Lease Sale 48 OST's directly to Los Angeles and San Francisco? If so, what incentive would cause the construction of offshore oil lines to onshore terminals? If oil is to be barged to onshore treatment plants, treated and then barged to refineries this "double-tankering" scenario requires further analysis in the FES.
- [66] 653 "A gas well blowout will cause little or no pollution because it will burn or disperse into the atmosphere." This statement is incredible. The H₂S from such a blow-out should be quantified and included in the "Impacts from Accidents" analysis.

- [67] 653 Gulf of Mexico data use. Use of Gulf of Mexico data for blowout - spill analysis contains faulty assumptions. Channel geology is more delicate and dangerous than that of the Gulf and more inclined to fracture. As we learned in 1969, blowout preventers cannot contain a blowout that breaks through a formation that has been fractured, as the Dos Cuadros and others are. This means that the estimates for blowouts must be raised to reflect the more dangerous California conditions. Paragraph 1, page 669, of the DES notes that Gulf statistics are not applicable for California.
- [68] 659 Spills. POCS Reference Paper VI states that Sale 48 will increase the expected number of spills by 50-55% over those from existing leases. This should be spelled out in the DES.
- [69] 659 IMCO. IMCO proposals and procedures, such as LOT, are not readily enforceable and should not be listed as a mitigation measure without USCG Memorandum of Understanding that they will be enforced.
- [70] 659 Risk analysis. It is not clear from this page or from the POCS Reference paper cited (Fig. 1-A and B) whether or not the oil spill risk analysis includes tankering or barging from platforms in all cases to the shore. There is no mention of movement of oil from the platforms to shore in the 100% tanker scenario on 688, although it is described in Mix A. It appears that the risk analysis may have neglected these routes and also neglected to include figures for spillage at loading and unloading periods, a common occurrence. Also, why is only 50% of the oil in Mix A pipelined ashore? Why not all of it? Will some be sent to other locations such as San Francisco? This section needs clarification.

- [71] 716 Table IIIA.4.b.ii-4. This is an excellent compilation of the data.
- [72] 725 Oil cleanup. As was noted in our comments on the PDES, the statement that California has the best oil spill cleanup contractors in the world is meaningless. Oil spill response equipment cannot function in seas over 6-8 feet and in winds over 4-6 knots. It may be a reasonable assumption that booms could be deployed between a spill and the shore, but the effectiveness of such deployment will depend on wind and sea conditions. This may invalidate the assumption only 25% of spilled oil will reach the shore. Given the right conditions, 100% could reach the shore.
- [73] 731 Spill impact. Probability of oil spill impacts on the Channel Islands range up to 76% (Santa Cruz Island). Given the sensitive nature of the island habitats, other alternatives should be seriously considered. It is clear from Table III.A.4.b.iv-5 that the oil and gas development orientation of BLM is essentially sacrificing the species and habitats of the Channel Islands. Inasmuch as these islands contain some of the richest habitats on the West Coast, the question must be raised is this tradeoff

worth 15 days of national oil consumption, in all likelihood which will be exported to Japan. This is the question that the DES is supposed to raise, but does not.

- [74] 736 The impact tables fail to list pinnipeds, cetaceans and rare and endangered species. Given the existence of 33 pinnipeds in the Channel, and 8 whales and 25 rare and endangered species, this oversight should be corrected.
- [75] 764 Paragraph 5. A 9% increase in ship traffic cannot be called "nominal". This is a significant increase anywhere in the Channel, and is dangerous in the east end approach to the TSS lanes and near the LNG docking area, should that be designated.
- [76] 765 Quake hazard. This is a good review of the quake hazards in the Channel. The FES should note the recent destructive quake in the Channel in August.
- [77] 770 Also, a discussion of the implications for damage from a Richter magnitude quake of 6, as indicated here, is needed.
- [78] 778 Excellent discussion of oil impacts. The discussion that follows should be summarized in a table. Additionally, the long-term chronic increase in hydrocarbon concentrations in the water column may be the most significant impacts in the long term due to interference with reproduction and communication, etc. That the "significance of long-term chronic effects is unknown" as stated here, is no justification for dismissing these effects.
- [79] 804 Santa Barbara Channel is identified as having the highest potential for spills and impacts -- 9.63 large spills and 42.76 small spills. The Channel is

consistently identified as having the highest potential for environmental damage from Sale 48, indicating that a careful balancing of values is needed in the DES between this richest of West Coast marine environments and the 15 days of national oil consumption Sale 48 is projected to supply. This contrast is not evident in the DES.

- [80] 837 Severe impact of large oil spills on the benthic community is noted here. This should be highlighted in the summary of environmental impacts.
- [81] 853 There is no justification for the statement that Clean Seas Inc. will, "encounter...and significantly decrease the amount of oil reaching the beach." The ability of booms and skimmers to interdict oil slicks is dependent upon the state of the seas and the wind. The consistent assumption of this DES that oil spill equipment will usually mitigate the damage from spills is not borne out in practice or by the equipment tests and drills of the contractors.
- [82] 853 Nearly all spills originating in the Channel will reach one or more of the Channel islands, according to the DES, with very serious impacts, depending on the season and the size of the spill. However, the discussion of intertidal impacts in this section is vague and does not clearly display the impacts of oiling of the intertidal communities. A concrete discussion of what the estimated damage, given the results of the spill model, will be needed here. Again, a tabular summary of the impacts is needed for clarity and also for comparison to the production benefits of the sale and development. The summary should tabulate and categorize the probability of various levels of damage, amounts of damage in terms of communities or

individuals destroyed, and repopulation time, if any. The tables on 858 and 859 are a good beginning, as is the discussion on 859.

- [83] 975 The description of the disruption of reproduction and nesting activities of marine birds by intrusions or flyovers justifies the recommendations of Santa Barbara County proposed Lease Stipulation 12. It also contradicts the conclusions in several sections of the DES that such activity will cause an insignificant amount of disturbance.
- [84] 884 Estimate of low disturbance to sea bird population is unjustified, especially given the conclusions and statements on 875. Again, the discussion needs clarification through the use of tabular summaries. In general the section on disturbance to marine mammals and birds relies too heavily on the matrix shown in Appendix F. This matrix withholds either high or low ratings, presumably until empirical evidence is in. But by listing the withheld impacts as low (#1) the impression is created that no significant impact is involved, a deception at the very least.
- [85] 890 There is no justification for the projected low impact of activity on Santa Rosa Island. This contradicts statements on pg. 934.
- [86] 892 The same comment is true for Santa Barbara Island.
- [87] 895 Cumulative effects of activity are identified as unknown, not low, a better statement than the conclusions of low impacts, above.
- [88] 895 Does the inability of spills to cause species extinction include the precarious Brown pelican, especially if oiled

during nesting periods?

- [89] 897 Good table. Similar tables should be prepared for all impacts.
- [90] 905 The Santa Barbara Channel will sustain greatest impact. This section is well written and the use of Table III.C.1 g-1 is welcome. However there is no justification for labeling disturbance impacts as either "remote" or "minimum," especially given discussion of impacts on previous pages.
- [91] 910 Discussion of Grey Whales is welcome. However the use of the terms "minor" and "remote" on pg. 912 is not justified. Under the Endangered Species Act, any damage to endangered species population is serious. Effects of oil development on whales is generally unknown, and should be so stated.
- [92] 929 Entrance of oil into Mugu Lagoon is a serious impact, especially during periods of high bird populations. Oil spill protection of Mugu Lagoon can be assumed, but cannot be considered to be foolproof.
- [93] 931 Santa Barbara Channel will have highest cumulative impacts, again noted.
- [94] 933 Paragraph 2 is obviously a description of the Point Conception Transition Zone, well-known to BLM staff. Why the reluctance to use the proper name of this phenomenon when describing it?
- [95] 939 What efforts will be made to reduce disturbance to pinnipeds during pipeline construction? Be specific.

- [96] 941 Injury to island bird and mammal populations in ASBS is listed as "virtually assured." Human activity also causes disturbance impacts on San Nicholas Island and other. This "virtually assured" damage should be highlighted.
- [97] 946 Again, why the reluctance to identify the Transition Zone (which extends up into the Channel) in Table III.C.1.1-4?
- [98] 963 Most significant water quality impacts of the sale are noted in Santa Barbara Channel.
- [99] 967 Table III.C.3. 9-2 reports a 15.5% increase in tanker traffic in from Sale 48. How does this compare with statement on pg. 764 that the increase will be 9%?
- [100] 997 Santa Barbara Channel Area. The Santa Barbara Channel section fails to identify any impacts, although the section implies that they will occur. They should be as explicit as possible.
- [101] 1016 Marine Sanctuary. Please specifically note that the Santa Barbara Channel Marine Sanctuary nomination plainly states that it does not attempt to block oil development in the Channel. The "oil and gas forgone" listing in Table III.C. 10-1 is a direct contradiction of the intent and the specific language of the nomination and must be removed.
- [102] 1019 Trade-offs. This type of trade-off analysis is what a DES is supposed to do for the Lease Sale. Why is there no equivalent table showing environmental resources forgone because of development? The pro-development bias of this DES is nowhere more obvious than on 1019.

[103] 1021 Air quality. Failure of the BLM to conduct new research, in spite of the finding by OPR that there is an inadequate data base for accurate modeling is one of many reasons for invalidation of this entire section. Why is there no mention of the fact that BLM has agreed to supplement this analysis with additional research?

Additionally, the comparison of Sale 48 emissions to South Coast air basin emissions is deceptive (so noted in Supervisor's letter to Peter Tweedt, DOI, 2-28-78, and by others). The sale's impacts are the decrease in air quality at the local AQMD and APCD level, where Clean Air Act requirements apply. BLM's persistent refusal to recognize this can only be taken as evidence of its intent to avoid an adequate analysis of the major impact of Sale 48. Such an analysis would of course cast doubt on the legality of DOI permits for exploration and development under Section 176 of the Clean Air Act. The BLM fails to recognize that the SBAQMD is a non-attainment area and that any new emission will have an impact either in offset requirements or sanctions.

[104] 1080- The explanation of model run assumptions are clearly
1083 spelled out and appreciated. The REM models appear to provide a projection of O₃ concentrations in the defined "regions." This is of little use in determining whether or not the SBAQMD is violating the National Standards for HC (160 yg/m³ or .24ppm) or what the contribution of Sale 48 is to any violations. (Region 1 is not coterminous with the AQMD and therefore can't be compared.)

In general, the air quality analysis fails to:

- *document the total weight of HC emitted to the atmosphere by Sale 48 development,
- *to determine the actual increase in HC (or other constituents) in the legal districts (AQMD's, APCD's)

where they must be measured,
 *fails to determine the contribution of Sale 48
 development to district violation of NAAQS
 *fails to address the question of "offsets,"
 *fails to use an adequate data base (there being
 none extant for the Santa Barbara Channel).

- [105] 1101. Oil spills. While the oil spill model is apparently the best available, it fails to predict the chronic low-level oil pollution from routine loading and unloading operations, ballast discharges, illegal tanker dumping, and tank washings, etc. It is these sources that contribute heaviest to the chronic pollution of the food chain that affect reproduction and other life processes in marine birds and mammals.
- [106] 1108 Oil spills. The Table III.E.3-2 shows probabilities of up to 80% that oil spills will reach seabird nesting and breeding sites from the projected launch points. This is a serious impact and a high probability of impact and should be carefully noted in environmental impact summaries. The same is true for Table III.E. 3-3.
- [107] 1121 Santa Barbara Channel Impacts. The DES consistantly notes that the greatest impact of additional oil and gas development will be in the Santa Barbara Channel. This fact should be specifically juxtaposed against the 15 days of national oil consumption the Channel is estimated to provide.
- [108] 1123 Tanker Traffic. The DES notes here that increases in tanker traffic due to Sale 48 will be heaviest in the Santa Barbara Channel.

- [109] 1139 It is difficult to believe that Sale 48 will generate a population increase of 3,498 people in Santa Barbara County in 1986, or that 565 new jobs will be created in the county by the Lease Sale. This contradicts the findings of OPR for Lease Sale 35. In general, the estimates of economic gains and costs generated by the Harris model for local government appear to be exaggerated due to the assumption of a multiplier effect of Sale 48 development dollars in the Southern California economy.
- [110] 1211 State and local government revenues. An analysis of source and amount of revenues accruing to local and state jurisdictions as a result of Lease Sale 48 should be included.
- [111] 1223 Lease Stipulations. The inclusion of "special stipulations" in the DES appears to contradict the assertions on pgs. 1407, 1408, 1411 and elsewhere that the stipulations proposed by Santa Barbara County duplicate existing law and are therefore unnecessary. Operating Orders may be waived by the USGS Regional Oil and Gas Supervisor through established procedures but without a notification of state and local agencies. Stipulations cannot be so waived and therefore provide an added layer of protection. It should be recalled that the waiving of Operating Orders for Union Oil Company's platform A by the regional supervisor in 1969 was partially responsible for the blowout in the Santa Barbara Channel.
- [112] 1232 Pacific Area OSC Order No. 12. This order assumes in paragraph 2 that the USCG will enforce regulations regarding the safety of drilling vessels. The California State Interagency Tanker Task Force Report (pg. 9) found the USCG curiously reluctant to enforce regulations, especially those regulating shipping. Given the history of lethargic enforcement by the USCG, noted in the report, this order does not constitute adequate protection and must be supplemented by lease stipulations.

- [113] 1233 Platform Placement. The present system of Corps of Engineers/USCG/BLM consultation regarding platform placement in shipping lanes is not adequate. The recent permits granted Shell Oil for placement of platforms in the approach areas to the Los Angeles/Long Beach ports is evidence of Corps lack of sensitivity to the hazards involved. The collision in December, 1977, of the Sansenina II with a fishing boat in a traffic lane on a clear night with operating radar is a tragic demonstration of the hazards of locating anything in shipping lanes or fairways. Until the Corps adopts and enforces a policy of not issuing permits under 3 CFR 209.120 for drilling vessels, barges, or platforms, in shipping lanes, this consultation procedure cannot be considered a mitigation device.
- [114] 1234 Wastewater. Produced wastewater as a pollution source is not an unavoidable consequence of oil and gas production. Wastewater can be piped or barged to shore (as is presently done from several platforms on the West Coast) for treatment and/or injection. It can also be reinjected into the formation if conditions are appropriate. Lease stipulations regulating wastewater handling should be adopted by the Secretary in the absence of EPA enforcement.
- [115] 1236 Federal Sanctuaries. It should be noted that Federal sanctuaries may be withdrawn at any time by the Secretary.
- [116] 1242 Stipulation 4. Who determines the feasibility of well-head protection, and according to what criteria?
- [117] 1243 Stipulation 5. Does the area of "special biological interest" described in 1) include the Transition Zone

centered at Point Conception? If so, what method will be used to determine the impact of OCS operations and appropriate mitigation measures? Additionally, the stipulation does not require notification of concerned state and local agencies. This should be included.

[118]1244 Stipulation 6. Does this stipulation encompass the onshore pipeline now undergoing feasibility studies by the Pipeline Working Group?

[119]1245 Stipulation 7. The insertion of "economically feasible" as determined by the Supervisor impairs the utility of this stipulation. By what criteria is feasibility established, and is there a notice and appeals procedure?

In general, the seven stipulations recommended in the DES do not provide adequate mitigation and protection, and should be supplemented by the addition of stipulations proposed by Santa Barbara County.

[120]1247 The Corps does not follow a policy of excluding drill ships and structures from the TSS lanes and fairways established by the USCG.

[121]1261 It is encouraging to note the intent of the Secretary of Interior to promulgate regulations as required by the recent amendments to the Outer Continental Shelf Lands Act enforcing the provisions of the Clean Air Act.

[122]1411 Stipulation 7, proposed. Comments of the BLM are incorrect. This proposed stipulation would reduce oil spills from SEM's and OS & T's. Bottom disturbance from pipeline construction would be offset by the elimination of disturbance from OS & T location. Non-federal permits are not necessarily more difficult to obtain than

federal permits, assuming good faith on the part of the applicants, and no industry/federal collusion as was evident in the permit issued to Exxon for the Hondo field OS & T.

- [123] 1418 Proposed Stipulation 12. Restriction of transportation of oil and gas from a small but environmentally sensitive area of Sale 48 until pipeline technology makes pipeline construction feasible is not justifiable grounds for rejecting this stipulation.
- [124] 1419 Proposed Stipulation 14. There is no legal requirement for the Secretary to wait until a settlement of air quality regulation issues is obtained to adopt Stipulation 14. See Stipulation 4, above.
- [125] 1301- The no-project alternative and replacement of energy
1377 "lost" by withdrawal of sale. The no-project Alternative ("Withdraw the Sale") is discussed on pg. 1377 of the DES. Withdrawal of the sale, the section asserts, would necessitate more oil imports, require reduced energy consumption, invite supply shortfalls, and dependence on alternative energy sources to reduce the "minor impacts" of the sale. This assertion contains a number of inaccuracies, non-sequiturs, and unsubstantiated conclusions. No documentation for the assertion is provided, so it is assumed that the discussion of alternatives is partly the basis for this section's conclusions.
- [126] 1) Withdrawal of the Sale will require increased importation of oil and gas.
- This conclusion assumes (1) that oil and gas demand in the United States cannot be reduced by conservation, and (2) that OCS 48 oil will back-out imported oil. Neither

assumption is correct.

Demand can be reduced. The DES discussion of conservation uses Project Independence Report estimates of conservation.

The use of Project Independence estimates for the potential reduction of energy demand is particularly insidious in that the thrust of the P.I. reports was to stimulate new energy production. Several more recent and better documented estimates of energy demand and conservation and alternatives exist including:

*World Energy Strategies, Amory B. Lovins, 1972.

*Soft Energy Paths: Toward a Durable Peace, A. Lovins, 1977.

*Energy for Survival, Wilson Clark, 1975.

*A Time to Choose: America's Energy Future, Energy Policy Project, 1974.

*The International Energy Situation: Outlook to 1985, CIA, 1977.

*"Conservation of Energy" Committee on Interior and Insular Affairs, United States Senate (Serial 92-18 USGPO 5270-01602) 1972.

Estimates of conservation and alternative energy supplies range up to 40% (Lovin, 1977), in these and other more recent estimates. The lack of credibility of the Project Independence estimates was demonstrated in 1975 when energy use in the United States dropped 4.9% and 2.5% respectively.¹ The CIA projected a 10-15% savings in energy use in the United States (page 5). Additionally, several senior Federal energy officials, including Dixie Lee Ray and Herbert Stein, told the Wall Street Journal that the P.I. projections of self-sufficiency are totally unrealistic (WSJ 3-6-74). Thus, the P.I. projection of reducing energy growth by .7 - 1.2% was proven wrong by events, and the estimated reduction of oil use by 2.2 mmbod (approximately 10%) through conservation is overly conservative.

A more realistic estimate of fuel demand reduction should fall between the CIA estimate of 10% - 15% and Lovin's 40%. However, the P.I. estimate of 2.2 mmbod potential savings is over 9 times the conservation required to negate the lease sale. A reduction in demand of 4.9% as occurred in 1975, would save 1,000,000 bod, over 3 times the peak production of Lease Sale #48. The National Energy outlook predicts 1985 savings of 1 mbd. in 1985, 10 times Lease Sale #48 production.

Foreign Oil Replacement Not Proven. Oil imports into California have not been backed-out by the arrival of Alaskan oil because the higher quality and lower sulfur content of imported oil makes it more economical to use, especially in boilers which must meet ARB regulations. One result has been a shutting in of onshore California wells due to weak demand. DOE has recently obtained permission to export California residual oil to alleviate the surplus. However, OCS 48 oils are lower quality and have higher sulfur content than the imported oils, making it difficult for them to back out imports without drastic (and unlikely) changes in the entitlements system.

The present surplus is projected by the ERCDC to continue past 1985, and total 600 to 1,800 mbd in 1985. Additionally, other projects due to come on stream during the OCS Lease Sale #48 project life will further increase the surplus. Construction of a Los Angeles to Texas pipeline will, if built, ship 500 to 1,000 mbd out of the state. This leaves approximately 100-800 mbd surplus, or a significant potential for surplus. Assuming the surplus is piped to Texas, there is still no reason to assume California refiners and boiler operators will prefer the lower quality and higher sulfur #48 crude to sweeter

crudes from Alaska or, more importantly, the imports they now rely on and are set up for. Development of remaining 1968 and OCS #35 leases will further aggravate the problem.

[127]

2) Withdrawal of the Sale will require reduced energy consumption.

This statement assumes no alternative sources of oil and gas or other supplies will be available to replace the 35 days national oil supply OCS Lease Sale #48 may provide. The Alternatives of the DES lists various fuel resources that could replace the #48 oil. Additionally, the DES cites Energy Alternatives: A Comparative Analysis, as a basis for projection of energy demand and the role of alternatives is questionable. The document is 3 years old and the data it relies on is as much as 8 years out of date. The same criticism applies to it as to the Project Independence Report. This was pointed out to the BLM with no effect.

While these fuel sources may be called upon to supply the 35 days of oil energy Lease Sale #48 may produce, the DES accurately represents increased environmental pollution, costs, and technical uncertainties of these sources. The DES fails however to consider a combination of the listed "hard" (fossile and nuclear) sources in which small presently planned expansion of each source would provide the necessary energy, assuming demand did not diminish due to conservation. This simultaneous development of various "hard" sources of supply is present defacto United States Energy policy and is now underway.

Thus, the conclusion of the No-Project Alternative that withdrawal of Sale #48 will require reduced energy consumption cannot be substantiated by an analysis of available "hard" technologies, although with increased impacts.

If conservation equal to the 1975 demand reduction were effected, a reduction in energy use which would have no negative economic impacts,³ and there would be no need for either Lease Sale #48 or other "hard" technologies.

[128]

- 3) Withdrawal of Lease Sale #48 will invite supply shortfalls and require dependence on alternative energy sources.

The question of supply shortfalls has been answered above. Additionally, discovery of brine containing enormous quantities of natural gas in the geopressure zones in the Gulf States has generated considerable interest in the industry and may more than provide the BTU's needed to replace the 35 days of National oil supply Lease Sale #48 offers or the 15 days supply in the Channel.

The DES discussion of "soft" energy alternatives is totally misleading and inadequate; the section asserts (pgs. 1391, 1395) that geothermal, solar, and other sources will not contribute to national energy supply for 10 - 20 years. This statement is incorrect factually and makes no sense in a discussion of oil leases that will produce until 2,000 A.D. The facts are:

Geothermal

1. Estimated United States potential for geothermal equals 1 - 10 million megawatts.⁴
2. Present production: by 1972, 790 megawatts of geothermal steam electric power was produced worldwide at 1/2 to 2/3 the cost of oil-fired power.⁵
3. Estimated potential production from the Imperial Valley is 30,000 megawatts,⁶ 79% of the 1985 demand forecast adopted by the State Energy Commission.⁷
4. PG&E presently produces 200 megawatts of power from the Geysers and is expanding its capacity to several thousand megawatts.⁸

Solar Energy

1. DOE planning projections indicate that present solar development programs can lead to 10-17 quads of power by 1985.⁹
2. Solar energy is currently used to heat homes and commercial residences in California and other States.¹⁰ The ERDA and the Electric Power Institute and developing 3-stage Solar Thermal Electric plant near Barstow. When completed in the 1980's, it will deliver 10 MW.¹¹

Wind Power

1. The ERCDC has proposed and will implement a wind generation project to produce 500 MW of power by 1985.¹²
2. Reliable wind turbines provided Denmark with 200,000 KW in 1908 and much more now.¹³
3. A committee of the NSF and NASA adopted the estimate of potential wind generated power of 159 billion KW by 1990 from New England alone.¹⁴
4. PG&E plans to construct 4,000 MW of wind generated pumped storage by 1995.¹⁵

Co-generation. 970 - 1,070 MW are projected by the ERCDC as being possible at present.¹⁶

Biomass. An oil industry committee of the USCDC estimated biomass use for producing fuels or for boiler fuel, is technically feasible. The committee estimated that biomass could be used to produce 3,000 trillion BTS's of energy -- about 3% of United States energy consumption. This far exceeds the potential energy for offshore oil production.¹⁷

- 4) The impacts of the Lease Sale are minor and should not require alternative strategies.

This is an unfounded and unjustified conclusion that flies in the face of 1645 pages of documentation of the impacts of Sale #48. Summarized, those impacts are:

- Increased air pollution
- Disturbance of 67,000 cubic yards of sediment
- Dumping of 200,000 bbls of drill mud per year
- Eleven new platforms
- Two OS&T's
- Three new tanker runs
- High probability of oil spill damage to island habitats (3 projected major spills, 6 minor spills)
- Disturbance of island habitats by pipelaying, platform erection.
- Workboat traffic impacts on fishing and recreation alteration of the Channel environment.
- Economic loss to state and local government
- Permanent change in the character of the Santa Barbara Channel.

- [130] 1271 The regional discussion of air quality impacts is not related to the AQMD that must enforce the NAAQS. This renders this discussion nearly useless for impact assessment. RHC must be projected for the AQMD. See comments on air quality, above.
- [131] 1283 Equating a visitor-day with the price of a movie is patently absurd! The price of gasoline and parking alone exceeds this. Chamber of Commerce and Tourist Board information should be used here to obtain a realistic figure.
- [132] 1283 California's CEIP funds are not distributed to counties and cities to offset deficits, but for specific projects. Moreover California's share of the CEIP fund is closer to \$1.5 - \$2 million a year, far short of the \$14.6 million projected deficit.
- [133] 1319 The Santa Rosa Platform is one of two major foraging areas for birds and mammals in the Santa Barbara Channel. This is more than worth the 1/3 day of oil supply forgone by removal of these tracts.
- [134] 1331 Deletion of the Santa Barbara Channel Marine Sanctuary area would forego only 15 days oil supply.
- [135] 1361 Onshore pipeline. The transportation scenarios discussed in the DES are not the "most probable." They are fictitious scenarios with no legal basis. Only the proposal for an onshore pipeline is "probable" in that it is supported by the county and state and is well into the feasibility study process and is required in a legally binding permit.
- [136] 1363 The economic impacts section fails to describe the included and excluded costs of the mislabeled "most

probable" scenario. Also, inclusion of tankering costs to San Francisco is not justified because refining location is purely a industry decision, and may be made regardless of the transporation mode used. This is also true for estimating impacts for the onshore pipeline in C offshore impacts and elsewhere.

[137]

1363 Onshore pipeline evaluation. It is not a conclusion of the Pipeline Working Group that San Francisco destined oil once pipelined to Los Angeles, would have to be tankered to San Francisco. 55,000 b/d capacity exists in San Joaquin Valley pipelines between Ventura and San Francisco and negotiations are possible to transport oil to refineries in Texas through the SOHIO pipeline. Very limited refinery capacity exists in San Francisco for oil that would be incompatable with onshore pipelines. Therefore, pipeline scenario pollutants should be recalculated assuming little or no tankering.

The costs for laying a submarine pipeline from offshore platform to Las Flores Canyon should not be attributed to the onshore pipeline option. If such a pipeline were feasible it would most likely be constructed even under a tankering scenario involving a nearshore marine terminal. It is doubtful that Secretary Andrus will approve additional OST facilities over the objections of state and local governments unless they are the only feasible development alternative (See Andrus letter to Jerry Brown June 28, 1977).

"This alternative could require capital costs of about \$400 million dollars more than the proposed Sale No. 48 most probable tankering and barging scenario." This statement is false. Total pipeline related investments do not approach \$400 million. The capital costs of tankering are not considered. What about vapor recovery systems? Vapor balance systems? etc?

Capital costs for an onshore pipeline are estimated to be \$76,200,000 with a tariff of 66¢ per barrel for viscous high sulfur crude. The cost drops to \$21,500,000 for light crudes (Hallanger Engineers 10/6/78).

The assumption of no cost difference between offshore and onshore processing is invalid. Costs should be broken down to support this conclusion.

- [138] 1366 While fewer total people would be employed by the onshore pipeline than by other modes of transportation, more local (as opposed to out-of-state tanker crews) people would be employed in the construction and operation of the pipeline.
- [139] 1375 There is no basis for the arbitrary selection of a "short term delay" for analysis, or until the amendments to the Outer Continental Shelf Lands Act are passed. A longer term delay, i.e., until after environmental baseline studies have been completed -- approximately five years -- sufficiently to allow adequate environmental analysis of the Lease Sale have been requested by Santa Barbara County and others. M
- [140] 1375 Delay of Sale would also permit resolution of current west coast to east crude oil transportation problems and/or west coast refinery improvements. Moreover, U. S. dependence on imported oil is a result of Clean Air Act low sulfur requirements and, more importantly, of wasteful energy and transportation systems, not delays in OCS development.
- [141] 1377 All references in this document to reduced dependence on foreign crude as a result of LS #48 development should be eliminated. This Country will always be dependent on foreign crude oil. If we continue to develop our domestic

oil reserves to meet the nation's growing energy appetite we only increase our dependence on reduced supplies of foreign crude as our own domestic reserves inevitably dry up. The only way to solve the energy problem is to reduce the demand for the globe's finite oil resources through conservation and shifts to "renewable" energy resources.

[142] 1377 Alternative Energy Sources. There are no national energy policies which include society-wide development of alternative energy sources. Those sources referred to in the DES as being litigated are large scale socially and environmentally dangerous, and uneconomically expensive, high technologies such as shale oil, nuclear reactors, etc. National energy research budgets have deliberately slighted true alternatives to fossil fuels and environmental degradation such as conservation and small scale solar heating and cooling installations. Continual OCS development will eventually force the United States to become totally reliant on foreign suppliers for oil to supply our non-fuel petrochemical industries, regardless of the energy sources in place at that time. To guard against this danger, OCS oil should be stored in its present structures as a hedge against future shortages of feed stocks. The drain-America-first policy of the Department of Interior will eventually aggravate U.S. oil shortages. The funds and energy expended on OCS development and environmental review of Lease Sales such as Sale 48, which will supply only an estimated 35 days of national oil consumption, would be better spent on development of solar and geothermal sources on BLM lands.

[143] 1377 Withdrawal of Sale. Withdrawal of Sale 48 would result in tremendous environmental savings, not the least of which is the possibility of local AQMD's meeting the NAAQS.

- [144] 1404 Lease Stipulations, General. The BLM's rejection of proposed stipulations submitted by local government on the basis of similar laws ignores the role of stipulations. Operating Orders may be waived by the regional USGS Oil and Gas Supervisor through USGS procedures which allow for no notice to state and local agencies. Lease stipulations may only be withdrawn by the Secretary of Interior, a far greater means of protection.
- [145] 1406 Stipulation 2. The Secretary's transportation plan is not a substitute for the requirements of a stipulation. The DOI may legally reserved the right to itself to recommend or required specific transportation modes. It should do so at this time by stipulation to prevent future legal questions over implementation of transportation programs. This stipulation will significantly reduce both air and water pollution caused by Sale 48 development (see pages 1361 - 1366).
- [146] 1410 Air quality stipulations. There is no need to resolve legal questions concerning air quality standards in international waters. DOI has the legal authority to lease submerged land inside the 200 mile limit, and to place stipulations on the leases.
- Current biological studies mentioned in the DES do not constitute a monitoring program. The GAO report (3-16-78, cited above) specifically recommends the type of monitoring program called for in this stipulation.

- [147] 1411 Stipulation 6. This stipulation does not delegate the Secretary's authority to a state governor. It requires consultation only. Significant reductions in impacts will result due to the elimination of OS&T's, and to the increased supply of clean burning natural gas for boiler fuels. This increased supply of natural gas will also result in a reduction of low sulfur oil imports, and oil spills and air quality impacts from foreign tankers.
- [148] 1477 Response I-5. "Current land use restrictions imposed by Santa Barbara County and the Coastal Commission make the possibility of new onshore pipelines remote." Both Santa Barbara County and the Coastal Commission have endorsed the onshore pipeline and have pressed for its inclusion in the LS 48 development plan. Santa Barbara County has, in fact, initiated general plan changes and rezoning to facilitate this pipeline.

Footnotes

- ¹ United States Bureau of Mines, 1976, quoted in Sacramento Report. 5/14/76.
- ² ERCDC California Energy Trends and Choices, vol. 4, pg.9
- ³ Senator Alan Cranston, Interview on U.S. Energy Outlook, Report to Californians, August 1975, #29. This point has been made repeatedly in the energy literature. See Lovin 1975-1977.
- ⁴ Committee on Interior and Insular Affairs, U.S. Senate, Conservation of Energy, 1972, pg.88.
- ⁵ Banwell and Meidau, "Geothermal Energy for the Future", paper presented at 138th Annual Meeting of AAAs, December 1971.
- ⁶ Committee, op. cit. pg. 87-90.
- ⁷ California Energy Trends and Choices, ERCDC, Summary, pg. 57.
- ⁸ Martin Goldsmith, Geothermal Resources in California: Potentials and Problems, California Institute of Technology, 1972.
- ⁹ DOE, Energy Insider, April 17, 1978.
- ¹⁰ Jobs From the Sun, California Public Policy Center, Los Angeles 1978.
- ¹¹ ERDC, op. cit. vol. I pg. 194.
- ¹² Ibid, pg. 183.
- ¹³ Clark, W. Energy For Survival, 1974, pg. 564.
- ¹⁴ Ibid
- ¹⁵ ERCDC op. cit. vol. 1, pg. 182
- ¹⁶ op. cit., pg. 115.
- ¹⁷ Clark, op. cit. pg. 445.

<u>Request and date</u>	<u>Response</u>
Demonstrate expected Federal revenues and compare to costs of Sale 48; " "	. no attempt
. include onshore pipeline as a transportation scenario in DES model; " "	. refused
. Discuss seismic history of Channel and hazards; " "	. ok
. Discuss alternative leasing patterns; ""	. ok
. Provide maps of negative and positive nominations; " "	. refused
. Negative nominations sale 53; BOS-SOI 6/12/78	. ignored
. recommend SB stipulations; BOS-SOI 4/3/78	. rejected, mostly
. environmental monitoring system, BOS, various requests	. no action to date
. New Source review for new OCS development and structures; various requests	. refused ; mandated under OCS Lands Act amendments (County position)
. withdraw Channel tracts from leasing until leased tracts have been explored; BOS various	. refused to date
. cancel spurious units in Channel; D.C. meeting Heller* Eddy 7/24/78	. ok
. improve oil cleanup technology; various	. refused to date
. Prohibit OS&T's if not sole	. refused to date

REQUESTS TO BLM AND/DOI and RESPONSES TO REQUESTS AS OF 10/8/78

<u>Request and date</u>	<u>Response</u>
Additional meteorology research for air quality impact assessment; BOS letter-Bill Grant, 4/3/78	Air quality consultant promised-no results yet
<ul style="list-style-type: none"> Revision of air quality impacts study to reflect incremental additional to pollution levels; BOS comments on AeroVironment study 2/28/78, letter to Tweedt 	<ul style="list-style-type: none"> RFP promised-no results yet
<ul style="list-style-type: none"> Request for delay in lease sale BOS-"SOI; 4/3/78 	<ul style="list-style-type: none"> no action; letter from SOI-BOS 5/19/78
<ul style="list-style-type: none"> Request to delete Channel tracts from lease sale; BOS-BLM 9/7/76 	<ul style="list-style-type: none"> no action
<ul style="list-style-type: none"> County specific summaries of impacts, PDES review 2/2/78 	<ul style="list-style-type: none"> partially met
<ul style="list-style-type: none"> Relate Sale 48 to national energy needs, PDES review 	<ul style="list-style-type: none"> vague attempt, not serious in DES
<ul style="list-style-type: none"> Place Sale 48 in National Energy Plan framework, " " 	<ul style="list-style-type: none"> no serious attempt in DES
<ul style="list-style-type: none"> Relate sale 48 production to future Calif. needs, "" 	<ul style="list-style-type: none"> no action
<ul style="list-style-type: none"> Discuss full range of supply alternatives, " " 	<ul style="list-style-type: none"> inadequate and inaccurate response in DES
<ul style="list-style-type: none"> Discuss new USGS Operating Orders and safety issues, " " 	<ul style="list-style-type: none"> partially met in DES

processing option

- . Mandate recovery of gas;
BOS PDES review, Stipulations
- . cooperate/encourage pipeline
working Group and onshore pipe-
line, various
- . Require unitization and con-
solidation, proposed Stip. 3
- . Require air and water quality
monitoring on platforms;
proposed Stip. 5
- . Recognize Transition Zone as
an area of special sensitivity
until research documents;
various, PDES review
- . Notice to State and local agen-
cies when policy or regulation
change is contemplated; propsed
stipulations, various
- . delay further leasing until en-
vironmental baseline studies are
complete; various
- . effective tanker monitoring/
communication system for the
Channel; various
- . Withdraw tracts with special en-
vironmental sensitivity and haz-
ards; PDES review, various, neg-
ative nominations
- . no action to date
- . some cooperation; no
encouragement
- . some action on unitization
may be ok; no action on
- . no action to date
- . not in DES; not taken se-
riously by BLM POCS Office
- . some progress at legis-
lative and D.C. level
- . refused
- . refused to date
- . no action to date

Withhold release of FES until
legality of EPA regulations in
OCS is clarified; letter to
Tweed, 2/28/78

. no action as yet

Mandate air quality mitigation
measures on tankers and SBM's ;
various requests, Tweed let-
ter, 2/28/78

. no action as yet



COUNTY OF SANTA BARBARA

CALIFORNIA

SANTA BARBARA COUNTY
DEPARTMENT OF PLANNING

ENGINEERING BUILDING
123 E. Anapamu St.
SANTA BARBARA
CALIFORNIA 93101
(805) 966-1611

ENVIRONMENTAL
RESOURCES

BRITT A. JOHNSO
Planning Director

PAUL W. WACK
Assistant Planning Director

October 12, 1978

To: Department of Environmental Resources

From: Planning Department

Re: Response to Lease Sale 48 DES

Two general aspects of the DES are deficient in terms of the inadequacy, inaccuracy or misleading nature of information presented: (I) socio-economic impacts and resulting planning needs; (II) project alternatives.

[149]

I. Socio-economic Impacts and Planning Information Needs

A. Operations-base: Periodic reference is made to the potential need for an operations base somewhere in Santa Barbara County. Since it is never made clear what kinds of activities are associated with such a facility, it is difficult to evaluate prospective sites. At one point it is suggested that this base should be located near a harbor. Is this type of facility "harbor dependent?" If so, fifteen acres "near the harbor" (p.650) would be difficult to find.

[150]

B. Projects and Proposals: The description of development projects projected for the 1980's in the affected areas of Lease Sale 48 is incomplete. No reference is made to two specific projects resulting from existing lease sales: the proposed installation of Platform Grace (and necessary expansion of related onshore facilities) and the recently announced plans of a Southern California Gas Co. affiliate to construct a gas processing facility at Las Flores to process gas produced in the Santa Ynez Unit. Are these projects incorporated into the projected impacts? No reference is made to the Missile-X project at Vandenberg Air Force Base and the resulting impacts.

Information on the proposed LNG facility at Pt. Conception is not only out of date in terms of the status of the project, but appears to be based on preliminary reports by Dames and Moore. A considerable amount of more detailed and current information has been generated on the project through state and federal reports. Are the projected impacts for the LNG facility (employment, housing, revenues, etc.) based on these more current documents?

[151]

C. Projected Land-Use and Socio-Economic Impacts: It may be more convenient to use California Dept. of Finance assumptions for population projections, but each of the affected counties is likely to have its own set of projections. The difference between individual county population projections

and CDF figures used in the DES could be significant in terms of impacts.

From a planning perspective, it is important to be able to project impacts on the basis of individual projects. The DES categories for impacts on employment, housing, population, services, revenues, etc., lump a whole range of projects (LNG, Lease Sale 53, Space Shuttle, etc.) into one large category. Such an approach makes it difficult to attribute specific impacts to specific projects and impossible to determine the assumptions used regarding each of the cumulative projects. The significance of the impacts from Lease Sale 48 is thereby lost.

- [152] D. Revenues: The discussion of public revenues and expenditures resulting from the proposed project(s) makes no reference to the effects of Proposition 13.
- [153] E. Onshore Pipeline: Although the benefits of the onshore pipeline (as a mitigation measure) are discussed in terms of air quality, it would be useful to provide more information on the impacts resulting from the pipeline option on larger land-use questions (employment, housing, etc.)
- [154] F. Proposed Stipulation No. 11: On the one hand, the DES suggests that the impacts on Santa Barbara County will be significant in some areas. On the other hand, the County's previous suggestion for a lease sale stipulation (pp. 1416-17), designed to more effectively anticipate these impacts, is denied. Contrary to the BLM comments in response to this stipulation (p. 1417), current USGS regulations and the Coastal Act do not require sufficiently detailed information as part of an Exploration or Development Plan. The seven requirements of proposed Stipulation No. 11 are more comprehensive and specific than USGS regulations and therefore are more valuable for planning purposes.

[155] II. Project Alternatives

The section on alternatives is inadequate and misleading. It is never made clear whether the energy resources derived from Lease Sale 48 are to be viewed in a national context or in the context of California energy needs. The ability to compare alternatives is further complicated by the failure to distinguish between the existing and projected set of policies and factors which shape oil as opposed to natural gas supplies. These distinctions--between national and California energy needs and between oil and gas--have a significant impact on the evaluation of the need for Lease Sale 48 and the alternatives.

- [156] A. If projected resources from Lease Sale 48 are to be assessed in the national context, then it should be stressed that probable oil resources constitute approximately 37 days supply.
- [157] B. If this quantity of energy is to be properly compared to all alternatives, then the alternatives discussed in section D of Chapter VIII do not present an accurate assessment of the conservation and solar energy options (pp. 1378 and 1390). Of particular value would be to compare the amount of oil and gas expected from Lease Sale 48 to additional energy conservation measures as part of federal energy planning. Which types of energy conservation measures can be expected to "produce" energy equivalents to that generated by the sale? Similarly with the solar energy option (p. 1390-91). The existing description presents no useful information on what kinds of policy measures would be necessary to result in the production and installation

of the required number of collectors capable of displacing an equivalent amount of energy. The section on solar energy is particularly disappointing in its failure to give an accurate description of the potential this source of energy presents. The Council on Environmental Quality report (Solar Energy: Progress and Promise, 1978) and the Office of Technology Assessment report (Application of Solar Technology to Today's Energy Needs, 1977) are just two recent examples of federal-level assessments of the considerable and undeveloped potential of solar energy at the national level.

If the oil and gas from Lease Sale 48 are assumed to contribute primarily to California energy needs, then the alternatives need to be presented in the context of the current and expected status of California oil and gas requirements, as discussed below.

[158]

- C. If the ultimate justification for Lease Sale 48 rests on the assumption that expanded California OCS development will "back-out" foreign imports, then the alternatives section should emphasize that new production from this area will achieve that objective only if and when the problem of the California oil glut is resolved. More specifically, it is clear that a combination of Alaskan oil, Elk Hills oil, the federal pricing policies (entitlements for old versus new oil) are currently responsible for considerable amounts of California onshore oil being "shut-in." Until and unless this situation is rectified (through permission to export crude surpluses, further refinement of the entitlements program beyond those of last summer, a satisfactory resolution of the Sohio pipeline issue, or some combination of these), expanded production of OCS resources through Lease Sale 48 can only continue to constrain onshore California production. Instead of "backing-out" foreign imports, Lease Sale 48 could very well contribute to the "shutting-in" of California onshore production.

[159]

- D. If the intention of Lease Sale 48 is to contribute to the satisfaction of California energy needs, then it is essential to make the distinction between oil and gas. In contrast to oil, natural gas is currently in short supply. However, when compared to mid-1980's alternatives and projections, the value of increased gas supplies for California is questionable. A recent report by the State Energy Commission (Natural Gas Supply and Demand for California, 1973-1995, March 15, 1978) suggests that a variety of alternatives are capable of satisfying natural gas supply through 1990. Expanded OCS production is a relatively minor factor. The only conditions under which OCS natural gas would become a critical source of supply for California would be if the federal government denies the proposal for imported LNG, fails to pursue Canadian and Mexican gas alternatives, and restricts the shipment of Texas intrastate surpluses to California.

Alternatively, the California Public Utilities Commission, in conjunction with its approval of the LNG project (Decision # 89177) appears to have adopted the policy of "the more gas the better." This policy option, one which would be consistent with the maximum development of OCS gas resource is explicitly based on the desire to provide as much gas as possible for

electrical power generation. If such a policy is pursued, and Lease Sale 48 gas resources were viewed as desirable to meet that objective, then proposed federal restrictions on the use of natural gas for electrical power generation need to be addressed.

Any projection of natural gas supplies and a comparison of the alternatives must account for the cost factor. What will be the effect of the expected de-regulation of natural gas on OCS gas production? Will the de-regulation of gas result in prices high enough to stimulate the production of OCS natural gas resources? Will de-regulation, in conjunction with marginal cost requirements for new supplies make natural gas clearly more expensive than alternatives such as solar energy?

[160]

- E. The "project alternatives" section is most misleading in its statement on the "most viable domestically available energy alternatives for the California region" (p. 1396). Table VIII D 3-1, depicting the "Energy Alternative Source Equivalents" to energy resources for Lease Sale 48, does not consider those alternatives which have been frequently identified as most appropriate for California. It is inaccurate and misleading to consider coal, coal gasification, oil shale, and nuclear power the most appropriate sources of energy for California. The California State Energy Commission, a recent report for the Department of Energy (Distributed Energy Systems in California's Future, May, 1978), and a recent CPUC decision on rate adjustments for PG&E have provided substantial evidence that the energy supply options included in Table VIII D 3-1 are not the most promising or appropriate energy supply alternatives for California. More specifically this evidence suggests that for California, even more than at the national level, conservation, solar energy, geothermal, and biomass fuels constitute a major and largely untapped potential.

MICS.

[161]

(Page 33) The life of Regional Commissions of the California Coastal Commission has been extended until 1981.

[162]

(Page 361) The abbreviations used for several California utilities are incorrect:

Southern California Edison should be SCE, not SOCE
Los Angeles Dept. of Water and Power should be
LADWP, not LOAN
San Diego Gas and Electric should be SDG&E, not SADG

Donald K. Schultz
Donald K. Schultz
Energy Planner
Planning Department
County of Santa Barbara



COUNTY OF SANTA BARBARA HEALTH CARE SERVICES
AIR POLLUTION CONTROL DISTRICT

4440 CALLE REAL, SANTA BARBARA, CALIFORNIA 93110 • PHONE (805) 964-8658

OCT 10 3 59 PM '78

RECEIVED
HOWARD C. ENGLISH
DIRECTOR, AIR POLLUTION CONTROL
BOARD OF SUPERVISORS
BY _____, DEPUTY

LAWRENCE HART, M.D., M.P.H.
DIRECTOR

October 10, 1978

Honorable Board of Supervisors
County of Santa Barbara
105 East Anapamu Street
Santa Barbara, CA 93101

Gentlemen:

RECOMMENDATION:

That the Air Pollution Control District be allowed to present the attached statement in conjunction with Department of Natural Resources to the Bureau of Land Management at a public hearing to be held in Santa Barbara on October 23 and 24, concerning OCS Lease Sale No. 48.

SUPPORT INFORMATION

The Draft Environmental Statement for OCS Lease Sale No. 48 contains several sections of data on air quality data, modelling, impacts and regulatory authority. In October and December of 1977, the Air Pollution Control District provided written response to drafts of the report's air quality section. The District requested numerous changes be made concerning the data that was used, the way the data was presented and data that should have been used but wasn't. The Draft Environmental Statement issued in September of this year does not address the previous comments of this District. Additionally, numerous other comments and questions have been generated by the District during review of the subject Draft Environmental Statement.

Respectfully submitted,

Lawrence Hart M.D.

LAWRENCE HART, M.D., M.P.H.
Air Pollution Control Officer

Keith English for

John B. English, Director
Air Pollution Control District

LH:JBE:ja

Attachment I

The following are comments and questions received during review of the Draft Environmental Statement. Several of the points are an expansion of comments or questions previously asked of Bureau of Land Management.

Page No.
1. 544 [163]

Comment

The APCD has control over vessels while docked and within three miles of the coastline only. What agency, if any, will control the vessels operating out of APCD jurisdiction and to what extent? Will APCD Rules (sulfur content of fuel oils, visible emissions, vapor recovery, etc.) be in effect. If not, what controls will be established

2. 550 [164]

The days exceeding the Federal standard (Table II, H.1-2' at Santa Barbara - State St' should be 5 instead of 9.

Page No.

2. 550 (cont'd.)

[164]

Comment

Of three air monitoring stations in Santa Barbara the State St. station has the lowest readings for 1975. At Cathedral Oaks the 1975 highest reading was .25 ppm and the Federal standard was exceeded on 34 days. At the Fairview station in 1975 the highest reading was .23 ppm and the Federal standard was exceeded on 21 days (from 3/31/75). We feel this data is more reflective of the area than the State St. station

3. 564

[165]

Data should be presented to show which stations violated the State standard for sulfates; by how much and how many times.

Page No.

560, 562 [166]

Comment

Tables II.H.1-5 and II.H.1-6 should be renumbered to be consecutive.

5 1031

[167]

The Draft Environmental Statement fails to mention the proposed MX: Milestone II project at Vandenberg Air Force Base.

6 1038-1043

[168]

The modelling data needs much more explanation for clarity's sake. Table III.D.2.b-1 headings need to be explained in more detail.

7 1065

[169]

It is hard to believe there will be no significant visibility impact in Region I as stated. Visibility reduction is not dependent solely on particulate emissions, but the formation of aerosols from

- | <u>Page No.</u> | <u>Comment</u> |
|-------------------------|--|
| 7. 1065 (cont'd.) [169] | sulfates and nitrates ab tends to impact on vis. ibility. |
| 8. 1234, 1235 [170] | There is no discussion of mitigation measures for air quality. A number of measures exist which would tend to reduce the impact (i.e. vapor re. covery of tanker loading requirements for the use of low sulfur fuels, water injection of turbines, etc. |
| 9. 1348 [171] | The DES states that at maximum resource estim. ates an additional gas processing plant would be needed in Santa Bar bara County. All model- ling is done with the assumption processing would be done in Ven- tura. Would the Santa |

Page No.
9. 1348 (cont'd.) [171]

Comment
Barbara processing plant be in addition to that in Ventura? Additional modelling should be performed to show the impact on Santa Barbara County should a processing facility be put in the County.

General Comment [172]

The report fails to address such peripheral ^{air} emission sources as construction and employee vehicular travel, the use of shore boats for construction and operation, etc.

General Comment [173]

Throughout the DES, there is reference to "normal tankering". What is meant by this term? How much oil is tanker-ed, how much pipelined?

Attachment II

The attached two letters were previously sent to Bureau of Land Management in questions, comments and concerns of the APCD those items marked with an asterisk have not been addressed in the subject Draft Environmental Statement



COUNTY OF SANTA BARBARA HEALTH CARE SERVICES
AIR POLLUTION CONTROL DISTRICT
4449 CALLE REAL, SANTA BARBARA, CALIFORNIA 93110 PHONE (805) 934-3838

LAWRENCE HART, M.D., M.P.H.
DIRECTOR

December 8, 1977

JOHN B. ENGLISH
DIRECTOR, AIR POLLUTION CONTRI

Mr. Thomas Cooke
Bureau of Land Management
P. O. Box 848
Los Angeles, CA 90053

Re: Draft EIS - Air Quality Section - Chapter II - Section "H"

Dear Mr. Cooke:

To be perfectly honest, I have assumed that previous changes that were suggested are incorporated in this second draft submitted.

Additional comments are as follows:

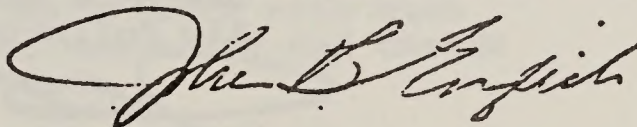
<u>Page</u>		<u>Comments</u>
9 & 11	[174]	* The ozone stations used to plot comparisons of selected stations should be changed to: Santa Barbara - Cathedral Oaks or Goleta Station Ventura - Simi or Ojai Station San Diego - El Cajon Station Note the station shown plotted and associated jurisdictional area.
12	[175]	* Make specific notation to levels of NO ₂ required to effect "pulmonary discomfort" rather than use of the term "very high NO ₂ " - (add footnote documenting source of information for pulmonary discomfort statement).
12		Mean daily O ₃ isopleth shown of 0.06 seem reasonable for Ventura and Santa Barbara and proper station reference would support the information shown.
17	[176]	* Ask author for spatical variability of NO (nitric oxide) in coastal areas. This will help document the reason for high inland NO ₂ values.
17	[177]	* Check 10 year summary data of SO ₂ annual average concentrations for better evaluation of SO ₂ impact areas in the Los Angeles basin. Show SO ₂ for San Diego County in the oceanside area.

Mr. Thomas Cooke
December 8, 1977

<u>Page</u>		<u>Comments</u>
21		End a sentence in "here".
21	[178]	* Add the reactive hydrocarbon isopleths, state the standard in the narrative. May be good to add RHC isopleths for all areas of jurisdiction to reflect impact of additional hydrocarbons.
24	[179]	* Indicate that H ₂ S standard has been exceeded in northern Santa Barbara and on the San Luis Obispo/Monterey county line.
24	[180]	* Discuss why lead values are so much higher than the AAQS and show isopleths of Los Angeles and San Diego where information is available.
24	[181]	* Where were ethylene "spot checks" made in relation to the study area? What levels of ethylene are seen in the former flower growing coastal plain of Los Angeles? How do these values compare to ornamental plant growing damage thresholds? If in another section, it should be shown or referenced.
26	[182]	* Year of record for the San Nicolas Island ozone data should be added.
27	[183]	* Santa Barbara ozone data trends are available for the more representative stations such as Goleta and Cathedral Oaks.

Very truly yours,

Lawrence Hart, M.D., M.P.H.
Air Pollution Control Officer



John B. English
Director, Air Pollution Control

JBE:ce

cc: Jan Bush, Ventura APCD
Bob Carr, San Luis Obispo APCD
Bill Simmons, San Diego APCD



AIR POLLUTION CONTROL DISTRICT
4440 CALLE REAL, SANTA BARBARA, CALIFORNIA 93110

PHONE (805) 964-8658

LAWRENCE HART, M.D., M.P.H.
DIRECTOR

October 19, 1977

JOHN B. ENGLISH
DIRECTOR, AIR POLLUTION CONTROL

Thomas S. Cooke
Natural Resource Specialist
P.O. Box 848
Los Angeles, CA. 90053

Dear Mr. Cooke:

I have attached my initial comments on your executive summary and portions of Lease Sale #48 draft. With our limited staff we could not respond by your August 10, 1977 deadline.

There seems to be a marked difference between the writer of this summary and the information provided by the detailed Air Quality sections. Basically it looks like a matter of interpretation of the information provided for the summary development.

It would seem absolutely imperative that you would require new source reviews (comparable to district rule 9.1 - attachment #2) to be consistent with Air Quality Maintenance planning of local government and mandates of the Clean Air Act with amendments of 1977.

A more realistic approach would probably be to require smaller and separate lease sales, thus permitting the full public hearing, notice and etc for those communities to be affected. This commitment of "close consultant with affected coastal States," and taking "into account the comments received from them, and from local governments, industry, environmental groups and other interested parties" was stated in the DOI news release of August 23, 1977.

Since the sale of 48 is for June 1979 and one of the earliest schedule you should be clearly establishing this new source review with the state and federal process.

Thank you for the opportunity to respond.

Very truly yours,

Lawrence Hart, M.D., M.P.H.
Air Pollution Control Officer

John B. English,
Director, Air Pollution Control

JBE: gj
CC: R.L. O'Connell - EPA - Region IX
EPA File

COMMENTS FOR SANTA BARBARA COUNTY AIR POLLUTION CONTROL DISTRICT

		PAGE	SECTION
		1	Exec Sum
* 1.	Gas tankering at 50%		
[184]			
* 2.	Basis for statement that stationary sources or ships emission controls are under the jurisdiction of AQMD.	3	"
[185]			
3.	North Western part of Santa Barbara County line is under jurisdiction of San Luis Obispo Air Pollution Control District.	3	"
4.	Show correct 24 hour SO ₂ standard for California(O ₃ and part factors)	4	"
* 5.	Who made spot checks of ethylene. Possibly methane instead?	5	"
[186]			
6.	Check maximum O ₃ values recorded. May have been .42 ppm. Check the last paragraph 3.1 sentence structure and the need to be set out alone.	5	"
* 7.	World total total human CO production ? How about leaving the human out.(3.2 paragraph)	5	"
[187]			
8.	How many 8 hours exceedence in Santa Barbara County. The number of occurances of standards being exceeded in the worst case areas not shown for any of the parameters.	6	"
9.	No exceedences of Annual SO ₂ NAAQS at El Segundo or Lennox? How about state 24 hours AQS for SO ₂ ?	7	"
* 10.	Value for TSP in Riverside. Only inert particulate creates irritation?	7	"
[188]			
11.	What methane value was used for determining RNC? Maximum one hour value in the entire study area only 12 ppm?	8	"
* 12.	What about the sulfate standard established by the state. Generally, the first 8 pages on Air Quality statement for the area should be better stated by a table with much more thought given to the narrative and trends of the area to be inspected.		
[189]			

COMMENTS (Continued)

		<u>PAGE</u>	<u>SECTION</u>
* 13.	What SO ₂ /NOX for acid gas incineration on [190] offshore treating facilities sulfate generated?	9	Exec. S
* 14.	Table 2 - LBS/HRS or KG/HR permitted under the NSR rules of the various areas. Were the 1975 [191] figures for NMHC in the SCAB used for comparison when the production for this sale area will be 1980 to 1985 or after.	10	"
* [192]	How many tankers were being loaded during a single 24 hour period for NMHC calculations?	10	"
15.	Absolutely do not believe the worst case increase at .001 ppm for 100% Tankering Scenario.	13	"
16.	What of a tanker collision release of oil, not just blowouts?	14	"
* 17.	No visibility input with sulfate generated?	14	"
[193] 18.	How can you move the source of NOX emission to the area that "welcomes such an industry."	16	"

COUNTY OF SANTA BARBARA



Office of
RUSSELL C. HANSCOM
Petroleum Administrator

PETROLEUM DEPARTMENT

October 11, 1978

DEPARTMENT OF
ENVIRONMENTAL
RESOURCES

2624 W. Foster R.
Santa Maria, Ca. 93
(805) 937-7271

3 09 AM '78

RECEIVED
COUNTY

MEMO TO: A. F. Reynolds, DER
FROM: Russ Hanscom, Petroleum Department *RCH*
RE: COUNTY COMMENTS - LEASE SALE 48 DEIS

The DEIS for proposed OCS Lease Sale 48 generally appears adequate for this department's concerns with the exception of several areas which are either outdated or misleading. These points are listed below, referenced to the corresponding page in the DEIS.

- [194] P 2, 4, 6, 7, 44--- A series of dry holes has been drilled on the most promising lease sale 35 in the Tanner-Cortes Banks area. In light of this, the peak production rates projected for sales 35 and 48 and the potential reserves for the Tanner-Cortes area should be reviewed and reduced. The Tanner-Cortes Banks area was originally estimated to have 39% of the total potential reserves offered in the sale, a significant portion.
- [195] P 44, 45--- The proposed SOHIO Oil line from Long Beach to Texas is listed as starting operation in late 1978. SOHIO is still obtaining permits and the earliest startup date based on current information is early 1981. This two year delay will reduce estimated tanker traffic by 322 calls per year for two years as well as probably shifting the oil supply projections.
- [196] P 536--- Table II G2dii3 Aminoil replaced Burmah as the Elwood area operator several years ago.
- [197] P 599--- Table IIH3-3 Most of these "technical limitations" are several years old. For example, a dynamically positioned drill ship has successfully drilled several holes and discovered oil in water depths exceeding 4,000' and Shell Oil is completing a fixed steel platform in 1,200' of water in the Gulf area. Subsea completions and pipeline installation and burial have had similar advances.

The onshore coastwise oil pipeline is missing from the potential transportation methods. It should be included for the potential reduction in tanker traffic and air emissions.

RH/d

Responses To:

County of Santa Barbara

- [1] The comments on the final five chapters were incorporated into the ES where appropriate. The air quality comments were addressed by our contractor AeroVironment (as agreed with Pat Hefferman) for the Final ES.

The fact that tracts were selected in the Santa Barbara Channel does not mean that local government comments were ignored.

The Department of the Interior is currently developing regulations required by the OCS Lands Act Amendments of 1978.

- [2] The model and modeling results are presented in the final report. The REM2 model analyzed the worst-case emissions and impacts on ozone air quality. These results give sufficient information to quantify air quality impacts and thus were used in this ES.

The use of 10km grid squares for modeling over the ocean was validated in unpublished sensitivity studies performed by Pacific Environmental Services. Comparison of 10km and 1km grids showed that the use of 10km grids gave a twenty percent higher air quality impact than the 1km grids. Since the impact of Sale No. 48 was evaluated by comparing identical trajectories, with and without Sale No. 48, the difference in grid size would be nearly cancelled out.

The attainment status of the study area and the impact of Sale No. 48 on this status has been addressed in the Final ES. The impacts to each county are summarized in Section V.F.

These subjects have been addressed.

- [3] Additional air quality analysis has been done on the onshore pipeline alternative. The onshore pipeline alternative is not discussed in the mitigation section of the ES because it is not a current legal requirement. Only legally enforceable mitigatory measures which will actually be in force can be considered as mitigatory measures that will definitely occur.

See comment [137] below.

- [4] The President's National Energy Policy as it relates to OCS activity is outlined in Section I.C.2.

California's oil balance is shown in Table VIII.D.3-4.

The OCS Planning Schedule is prepared by the Department of the Interior and takes national needs into account. The U.S. is importing more than seven million barrels of oil per day. The need for the oil is clearly established by this fact.

- [5] The ES is not a justification document. It is an assessment of impacts which would result from the sale if it were held.

The crude oil would not be exported; only a part of the residual, as stated in your comment. This export, after refining, would be beneficial to our balance of payments.

- [6] Conservation is discussed in the alternatives section which points out that a twenty-five to thirty percent reduction of energy could be achieved in some instances through conservation methods.

- [7] A summary of impacts for each of the six proposed sale areas is discussed throughout the ES. It is also stated throughout the analysis that the impacts for the proposed sale would be most heavily felt in the Channel areas.

- [8] The phenomenon and the area referred to in this comment are described in many areas in the ES including Sections II.E.3., II.F.3.c., II.F.5., III.C.1.b., III.C.1.i., and III.C.1.j. The area is described as being a transition zone but the term is not used as a proper noun to identify the area.

- [9] The ES is intended to show the impacts if a sale were held. The Secretarial Issue Document (SID) for the proposed sale will address the costs versus the benefits.

- [10] See responses [50] and [113] below.

- [11] Of the 217 tracts proposed for Sale 48 leasing, approximately thirteen percent are in water depth in excess of 2,000 feet (water depth taken at midpoint of the tracts). See Section II.H.3, Oil and Gas Technology.

- [12] The effectiveness of oil spill containment and cleanup equipment is dependent on a number of factors such as quantity and type of equipment, training of personnel, weather, sea state, type of oil, quantity of oil, location of spill, etc. There are also trade-offs, e.g., while heavier seas reduce the effectiveness of recovery equipment, it also accelerates the weathering process. New and better equipment is constantly being added to the arsenal of cleanup groups including Clean Seas Inc. Additionally, new methods are being incorporated as soon as they are proven safe. Experts within EPA, U.S. Coast Guard and the Department of the Interior agree that the statement appearing on page 725 of the DES, "This means that less than twenty-five percent of any spill (occurring in OCS waters) could reach shore," is a good one. This is the assumption that was used for analysis.

- [13] Development related to existing Santa Barbara Channel leases and OCS Sale No. 35 leases have been included in the cumulative impact analysis. The Missile-X project has been added to the list of projects in Section I.E.8.
- The Point Conception LNG facility information has been updated.
- [14] An attempt was made to present impacts in a factual, rational and accurate way. It is true that many impacts of OCS oil and gas developments are unknown and, in some cases, an estimation was made by the staff as to the severity of these impacts. In those cases where impacts were estimated, the impact determinations were made with the best available information.
- [15] The air quality section of the ES has been revised significantly.
- [16] The onshore pipeline transportation alternative has been more fully assessed.
- [17] The proposed Santa Barbara County stipulations are not included in the alternatives section of the ES since they are not a part of the proposal at this time. They have been moved to Chapter IX in the ES.
- [18] Research sponsored by BLM is being conducted and is planned for the future in an attempt to find out to what extent OCS oil and gas development activities have an impact upon the marine environment.
- [19] Analysis of costs will be conducted in the Secretarial Issue Document (SID) for the proposed sale.
- [20] The Withdraw the Sale alternative is discussed in Section VIII.C.
- [21] BLM agrees that an effective monitoring program should be implemented to evaluate the on-going effects of OCS oil and gas development on the marine environment, including bird and mammal resources. BLM is currently evaluating the extensive baseline studies conducted in the Southern California Bight over the past three years to determine what indicators in the environment to monitor and what effects the development will have on these indicators and other parts of the marine ecosystem. Certainly the design of any BLM monitoring program should build on the results and insight gained from the baseline program. At the present time, the Pacific OCS Office has identified some studies to identify effects and indicator methods to detect impacts in the marine environment for supplemental funding in the FY 1979 studies budget and the FY 1980 budget. However, the money for these studies has not been allocated as yet. BLM will be considering these studies and others at a meeting in January to update and revise the

regional study plan for Southern California. The Pacific OCS Office will be inviting State representatives to participate in this meeting. BLM would welcome Santa Barbara County participation and recommendations at this meeting, either through the State representatives or by attendance at the meeting itself.

[22] See response [12] above.

[23] State and local government input into the nomination and environmental review process is documented in Section I.B and Section IX and in the ES No. 48 File in the Pacific OCS Office. The fact that not all State and local government recommendations were adopted does not mean they were not considered. Each recommendation was evaluated and considered.

[24] Summaries of impacts have been provided for each impact section. Economic impacts have been presented on a county by county basis. Impacts have also been presented on an area by area basis.

[25] We feel that the requirements of NEPA have been met and that a delay to do additional research is not required.

[26] No response required.

[27] The Gaussian models used are recommended by the EPA (U.S. EPA, Guideline on Air Quality Models, OAQPS No. 1.2-080, EPA-450/2-78-027, April, 1978). The analysis used meteorological inputs which identified maximum impacts even if they occurred beyond three miles from shore. The assumptions were not intended to maximize onshore impacts but the offshore impacts identified would be larger than any onshore impacts. Thus, the worst-case analysis identified and quantified impacts from Sale 48.

In addition, the meteorological situation identified (flow reversal) would have the effect of having some build-up of pollutant concentration. However, the concentration onshore should be less than double the concentration identified in the analysis, because of the travel time and resulting diffusion of earlier emissions. However, the impact on the peak concentrations identified in the analysis would be small resulting from a small increase in the general background concentration in the area.

[28] CO impacts onshore are predicted from Sale 48 activities. The background CO concentrations at these impact locations were estimated for future years. The slight change indicated in onshore CO emissions (one percent) would have a negligible effect on the concentration predicted at the impact locations. However, if Sale 48 activities result in an indirect increase

in VMT onshore of one percent, this would have the effect of slightly increasing onshore CO concentrations and thus affecting the attainment and maintenance of CO standards.

The CO standard reference on page 1038 of the DES has been corrected.

[29] The conservative assumption of complete conversion of NO to NO₂ was used to obtain a conservative estimate of impacts. As indicated, this and other assumptions are conservative and actual impacts should be less than those shown.

[30] In the REM2 modeling runs, the trajectories were artificially constructed to pass over all components of the complex of new sources. This technique is superior to a three-dimensional modeling exercise that is normally done for an actual day which may not represent a hypothetical worst case.

[31] The authors intuitive feelings about the expected impact on ozone air quality are probably based on his experience in modeling all anticipated offshore oil production in Santa Barbara ("Offshore Oil and Gas Development: Southern California", Office of Planning and Research, October 1977). The low impact of Sale 48 is primarily related to its increased distance from shore as compared to the activities modeled by the author.

The photochemistry in the REM 2 model is "state of the art". There is no proof that it is not valid for the conditions modeled. Even if the Santa Barbara ozone data used to validate the model were in error, the agreement between predicted and actual values is within the range of uncertainties associated with all models. All conclusions are based on comparisons of similar model runs in order to compensate for the uncertainties.

[32] Alternatives to the proposed action are identified and impacts analyzed in Section VIII. Included therein is an expanded section dealing with the onshore pipeline.

[33] Summary has been rewritten to reflect the potential impact of Sale 48.

[34] Although the onshore pipeline would certainly mitigate impacts, it is not currently a requirement and cannot be made a requirement by Interior due to lack of jurisdiction. It is therefore an alternative which is available but is not legally required.

[35] "Exotic" has been deleted and "newly developed" has been added.

- [36] The proposed Santa Barbara County stipulations are alternatives to the proposed BLM stipulations since, in most cases, they paralleled BLM stipulations, OCS Orders, NTL's, CFR's or other Federal laws.
- [37] Comment noted. Production rates by regions are given in Tables III.A.1 through 6.
- [38] The onshore pipeline alternative is discussed in Section III.F.5.
- [39] It is based on historical platform construction data presented in Onshore Impact of Southern California OCS Sale No. 35, OPR, 1976, Section VIII.
- [40] Areas of potential biological interest are defined in Stipulation 5, Section IV.
- [41] Other negative nominations received are shown in Table I.B.3.a-1.
- [42] Correction made as suggested.
- [43] See response [12] above. Environmental concern maps.
- [44] We have assumed in the ES that Indonesian oil will continue to be imported. However, by the mid-1980's when proposed Sale No. 48 crude would come on line, it is anticipated that California refineries will be able to refine the oil due to retrofit operations and batching of heavy California crude with light imports.
- [45] The proximity of California crude to California refineries and the resultant lower transportation costs will make proposed Sale No. 48 production economically attractive.
- [46] Negative nominations were considered and are shown in Figure I.B.2-1.
- [47] The County of Santa Barbara and the State of California were shown all maps regarding nominations and environmental concerns on December 2, 1976 before final tract selection was made. Figure I.B.2-1 clearly indicates that the entire Santa Barbara Channel was nominated both positively and negatively.
- [48] Please refer to the response [21] above.
- [49] Conservation is discussed in Section VIII.C. In the National Energy Plan, OCS production is deemed necessary to enable the U.S to reduce its dependence on foreign oil and to buy time to develop alternative energy sources.

- [50] The Traffic Separation Scheme is established by the U.S. Coast Guard and is recommended for use by vessels approaching or departing from a major harbor. The Scheme has been designed to aid in prevention of collisions at the approaches to major harbors, but is not intended in any way to supersede or alter the applicable rules of the road.
- [51] The Coastal Zone Management section has been updated as suggested.
- [52] The Air Quality section has been revised.
- [53] Activity resulting from existing leases has been included in Section I.E.1 and 2. The Missile-X project has been added as Section I.E and the LNG project discussion has been updated.
- [54] Such a map would not be very illuminating, as whale migrations in the Channel and the Bight are not confined to discrete corridors but occur throughout most of the Channel and Bight.
- [55] See response [8] above.
- [56] Comment is included in text.
- [57] It is anticipated that California refineries will be able to process proposed Sale No. 48 crude by the mid-1980's.
- [58] Non-attainment areas have been identified and a discussion of the impact of Sale 48 on these areas has been added.
- [59] The inadequacy of existing oil spill equipment is pointed out in Section III.A.4.b.iii which states that overall 25 percent of any OCS oil spill could reach shore. Equipment specifications, lists, training, methods of development, time to deploy, etc. are submitted for approval prior to and drilling or development.
- In addition, thousands of pages of reports and analyses of oil spill equipment effectiveness are available. These documents are constantly being changed and updated. The cataloging of equipment, methodology of use, training, etc. can be obtained from the group or agency providing the equipment, and is too extensive to include in the environmental statement. Generally speaking, the type and quantity of equipment does indicate the capability for response to a spill to those persons familiar with oil spill equipment and is therefore included in this statement.
- [60] This statement is clear and does not need to be changed. It should be viewed in light of the expected number of spills. If a moderate spill occurs, the rate of decline would probably be detectable.

- [61] Statement has been corrected. Note that the SOHIO scenario applies to three super tankers ballasting simultaneously in port, a worst-case situation that would never occur if normal practices were followed and available controls were implemented. Ballasting was assumed not to occur in the scenarios modeled for Lease Sale No. 48.
- [62] Text corrected.
- [63] Comment noted.
- [64] No's in Table III.A.3-1 indicates no trawl fishing interferences and not indicated for navigation interferences.
- [65] The statement means that initial production, before pipelines to shore or O.S. & T.'s are in place, would probably be barged to onshore facilities. It is not anticipated that any significant amount of oil would be transported during this phase. It would be unlikely that any double-tankering would take place.
- [66] Section has been revised to refer to air quality analysis section for air quality impacts.
- [67] The following statement has been added to this section: "While Gulf of Mexico data is not truly representative of Southern California conditions, it is the only statistical data available."
- [68] The increase in the expected number of oil spills due to Sale 48 is spelled out in Table III.A.4.a.iii-5 and Table III.A.4.iv-1.
- [69] Information on Load-on-Top (LOT) procedure proposed by IMCO is indicated as information only and not intended as mitigating measure. Section IV includes mitigating measures.
- [70] Table III.A.4.a.iii-3 just defines the tanker/barge routes. Transportation scenarios are defined in Section III.A.4.b.i. In the 100 percent tanker scenario, in each case where an area is mentioned, the term "area" is synonymous with "platform" and the terms "Long Beach" and "San Francisco" are synonymous with "shore". The methodology for calculating spillage along the various tanker legs is explained in Section III.A.4.b.i. The various tankering scenarios are defined by the U.S. Geological Survey based on projected oil resources and refinery capabilities.
- [71] No comment required.
- [72] Given the right conditions, 100 percent of an oil spill would also be recovered. Four to six knot winds will not affect oil spill response equipment although thirty-five to forty knot

winds can effect operation. Higher winds and heavy seas do not necessarily prevent the function of equipment but do reduce its efficiency. These same rough conditions also serve to accelerate the weathering process. It was with these types of limitations in mind that the twenty-five percent value of spilled oil reaching shore was selected.

- [73] The trajectory statistics referenced must be compared with other data such as weathering, clean-up capabilities, habitat description, species description and locations, probability of a spill occurring, etc. It is not clear "that the oil and gas development orientation of BLM" is essentially sacrificing the species and habitats of the Channel Islands. In any case, this section discusses environmental impacts. Trade-offs and other factors are discussed in the alternatives section (Chapter VIII).
- [74] The resource categories listed in these tables reflect "at sea resources" that reflect areas and flora/fauna not associated with a shoreline. An oil spill impacting one of these categories registers a "hot" and passes on until either 60 days has elapsed or a shoreline segment is impacted, at which time the spill stops. Cetaceans were not listed because they are thought to pass through the entire sale area. Therefore, it is assumed that a spill anywhere in the proposed Sale 48 area would have a 100 percent impact and modeling is not required. Pinnipeds and rare and endangered species are associated with particular shoreline segments due to breeding, nesting, haul-out or resting areas. For this reason they are evaluated within the shoreline segment information provided on Tables III.A.4.b.iv-11 through 13.
- [75] Nominal traffic is a term used by John J. Mullen Associate to describe a nominal commodity flow projections and expected ship growth. "Nominal" is not intended to describe the number of ships.
- [76] Section III.A.4.d discusses ship collisions.
- [77] The implications of a damaging earthquake are discussed in paragraph one of Section II.B.1.
- [78] The discussion that follows is summarized in Table III.C.1-1. The overview of the Santa Barbara spill does not lend itself to tabular summary and is best discussed in sentence or paragraph form.

The unknown biological effects of prolonged chronic oil pollution are mentioned throughout the biological impact sections. They are not dismissed; there is simply not a large body of knowledge about them.

- [79] Comment noted. The Secretarial Issue Document for proposed Sale No. 48 will compare environmental impacts with possible benefits.
- [80] The impacts on the benthic communities are summarized in Section III.C.1.b. Predicted and possible impacts are included and a need for further highlighting is not felt to be necessary.
- [81] The performance of Clean Seas Inc. has been hampered in the past by weather conditions and other factors. There are also many times when their performance has been excellent and effective. Their equipment and capability is also constantly upgraded. In trying to achieve a fair balance between successes and failures, the value of 25 percent of spilled oil reaching shore was selected.
- [82] Many intertidal impacts are not known, particularly when considering all the ways the spills could occur with respect to concentration, frequency, timing, etc. The impacts could be severe under certain conditions, but could also be insignificant if the spills are widely spaced temporally and geographically. The level of quantitative prediction requested in the comments is impractical and unrealistic.
- [83] BLM's reasons for not accepting Stipulation 12 are given in the ES. The BLM will recommend that activities such as low level flights and pipeline construction occurring within three miles of a nesting or puping area be avoided during the puping or nesting seasons. The impacts referred to in Section III.C.1.d.ii of the ES are the known impacts of low level flights and direct human disturbances to nesting birds. These types of impacts will be avoided if the above recommendations are followed.
- [84] See response [83] above. The matrix was not used as an outline for the ES. It was developed after the text was written. Ratings in the matrix were based upon best available information. Regarding marine bird concentration, the definition of a low impact, Appendix F, page F-7, states that up to 25 percent of the population may be impacted.
- [85] Santa Rosa Island is not discussed on page 890 of the DES. Santa Rosa, San Miguel, Santa Cruz and Anacapa Islands are collectively called the Channel Islands. Impacts to the Channel Islands are discussed in Section III.C.1.d.iii. Statements on page 881 of the DES are not in contradiction with those on page 934.
- [86] Adequate justification for the conclusions made in regards to impacts on Santa Barbara are given in the ES: Section III.C.1.d.iii, Santa Barbara Island Area.

- [87] Comment is noted.
- [88] See Section III.C.1.f for the discussion.
- [89] No comment necessary.
- [90] The designation of levels of impacts is admittedly subjective but determined with the best available information.
- [91] See response [90] above for discussion of impact designation. The impacts of OCS oil and gas development upon whales is generally unknown and statements to this effect are found in Section III.C.1.f of the ES.
- [92] We agree with the comment. The lack of certainty of protection of Mugu Lagoon from oil spills is indicated on pages 930 and 932 of the DES.
- [93] Comment noted.
- [94] See response [8] above.
- [95] See response [88] above.
- [96] Existing discussion is adequate.
- [97] See response [8] above.
- [98] Comment noted.
- [99] Table III.C.3.a-2 indicates 13.5 percent increase and not 15.5 percent. 13.5 percent considers only the Sale 48 tankers and barges as compared to the current shipping in Santa Barbara Channel. Nine percent does not include Sale 48 traffics.
- [100] The impacts that this comments states as "implied" have been discussed in a more thorough manner in the introductory pages of this section and again in the Section III.C.7.e.
- [101] Due to recent actions of the NOAA, Office of Ocean Management, regarding the marine sanctuary recommendations off Southern California currently under active consideration and an apparent change in (but as yet undefined) areal extent of a possible Santa Barbara Channel Marine Sanctuary designation, this section has been revised. It must be pointed out, however, that despite the marine sanctuary wording, NOAA may elect its own regulations and/or prohibitions within a sanctuary. These have yet to be defined for a possible Santa Barbara Channel Marine Sanctuary.
- [102] This section has been rewritten. The environmental impacts of the proposed action are analyzed in Chapter III.

- [103] Additional analysis has been performed to make the changes in the Final ES. The Final ES includes discussions of non-attainment areas and the impact of Sale 48 on onshore air quality and Attainment Plans.
- [104] All modeling was done by "state of art" techniques. No models are capable of predicting the number of violations of the ozone NAAQS attributable to a specific project such as Sale 48. There is no simple relationship between air quality and the total weight of HC emitted because of the dispersion of offshore emissions as they travel to land. The same amount of HC emitted offshore has a much greater impact than an equal weight emitted far offshore.
- The impact of HC emissions on resultant ozone concentrations is analyzed directly and presented. A summary of impacts by county is given in Section V.F. The specific items identified have been updated and now address these items.
- In general, there is a limited amount of data available on air quality offshore of Southern California. However, the data is available was used to support the analysis done in the AeroVironment report. This report analyzed the impact of the additional emissions related to Sale 48. With the results of this report and the additions to the analysis presented in this Final ES, air quality impacts are felt to be adequately addressed.
- [105] The oil spill model is a specialized model that determines trajectory information for a point discharge. Chronic miscellaneous polluters are difficult to predict or model. These low level background sources are considered under water quality.
- [106] Statements have been added to Section V, Unavoidable Adverse Effects, that address your comments.
- [107] Cost-benefit analysis will be conducted in the Secretarial Issue Document (SID) for proposed Sale No. 48.
- [108] Comment noted.
- [109] The population and job gains include both direct and secondarily induced population and job changes.
- [110] More detailed and site specific information would be required to generate such data. It is beyond the scope of the Harris Model to separate state from local expenditures and revenues.
- [111] Some of Santa Barbara County's recommended stipulations duplicate existing leases and regulations on BLM's proposed stipulations.

Under the OCS Lands Act Amendments of 1978, state government will be informed of any waivers of Operating Orders.

- [112] The USGS enforces both OCS operating orders and lease stipulations to the best of its ability.
- [113] Corps of Engineers' Public Notice No. 78-85, 17 February 1978, is an application for a permit by Shell Oil Company for construction of a drilling platform "Ellen" and a production processing platform "Elly" in the San Pedro Channel area on the Outer Continental Shelf. As of November 9, 1978, the Corps of Engineers had not issued the construction permit to Shell Oil Company for above two platforms.

The referenced 3 CFR 209.120 has been revoked and reserved (Federal Register, Vo. 42, No. 138 - Tuesday, July 19, 1977, page 37133). Under Section 1333(f) of the Outer Continental Shelf Lands Act (OCS), the Corps of Engineers has the authority to issue construction permit for above two platforms.
- [114] Under the proposed action, wastewater would be dumped into the ocean in conformance with OCS Operating Orders. Dumping would not be permitted in biologically sensitive areas.
- [115] This comment has been incorporated in the ES.
- [116] The Supervisor, USGS, determines the protection.
- [117] The Transition Zone could be included as an area of special biological interest.
- [118] The Department of the Interior encourages the use of pipelines where possible. However, onshore pipelines are beyond the jurisdiction of the Department.
- [119] The Supervisor, USGS, determines the criteria with advice from BLM, U.S. Fish and Wildlife Service and the National Park Service concerning environmental aspects of an activity.
- [120] A Traffic Separation Scheme (TSS) is established by the Coast Guard. A shipping Safety Fairway is recommended by the Coast Guard and established by the Corps of Engineers. No drilling is permitted in the Safety Fairway. The drilling guidelines for the Gulf of Santa Catalina TSS were published in the Federal Register, June 7, 1977, for review by the public and have been approved by the Corps of Engineers. These guidelines are an agreement between the Coast Guard, Corps of Engineers and other interested agencies.
- [121] Comment noted.

- [122] O.S. & T.'s may be the only reasonable development method available in some cases and could lead to more environmental disturbance.
- [123] Comment noted.
- [124] The Department of the Interior is currently in the process of promulgating appropriate air quality regulations.
- [125] The alternatives section of the ES states that, in some cases, conservation could reduce demand by as much as thirty percent. See Section VIII.C.1.
- [126] Some California refineries are using 100 percent Alaskan crude oil (Exxon's Benicia Refinery), while they were using foreign imports previously. Reduced transportation costs of Sale 48 oil will make it economically desirable.
- [127] The sentence has been deleted as suggested by the comment.
- [128] The sentence has been deleted.
- Biomass, geothermal, solar and wind power are not perfect substitutes for oil. Oil products are used heavily in transportation to power gasoline and diesel motors in cars, trucks, ships and airplanes. Biomass, solar, geothermal and wind power could not be used very effectively as substitutes in the transportation industry in a majority of cases. They are, however, excellent energy sources for the generation of electric power and space and water heating.
- [129] The overall impacts of the proposal are minor although some small geographic areas could experience heavier impacts during the development life of the proposal.
- [130] See response [2] above.
- [131] The visitor-day price was for a beach visitor-day. The section has been rewritten to make it more easily understood.
- [132] There is no reference to CEIP funds on page 1283 of the DES. However, CEIP funds are allocated according to a formula that includes oil and gas related employment, oil and gas landed onshore and oil and gas activities in a states adjacent to the OCS area. The amount of funds made available to each state, therefore, cannot be calculated at this time.
- [133-
134] Comments noted.
- [135] The onshore pipeline alternative is discussed in Section III.F.5 and has been updated.

- [136] This section has been updated.
- [137] The crude oil transportation scenario for Sale 48 includes an estimate that a given amount of crude oil is transported by tankers from the Santa Barbara Channel to the San Francisco Bay area. For Sale 48, the crude is loaded on the tankers at Ventura and at an O.S. & T. at the western end of Santa Barbara Channel. To conduct a comparative crude transportation study between the Sale 48 transportation scenario and the alternate onshore pipeline from Las Flores - Ventura - Los Angeles, an equal amount of crude to the San Francisco Bay area was used for both analyses. Therefore, for the onshore pipeline analysis, an assumption was made to transport crude by tanker from Los Angeles to the San Francisco Bay area.
- Using the latest pipeline cost information (Hallinger Engineers Executive Summary Report 10-6-78) the alternative could cost about \$220 million dollars more than Sale 48 most probable tankering scenario. The above cost is a total cost for the duration of Sale 48 activity. The \$400 million was based on Hallinger's preliminary report which included Scenarios No. 1, 2, 3 and 5. The cost analysis of \$450 million included the average tariff values of the above four scenarios.
- Hallinger's (10-16-78) report summarizes tariff cost for scenarios No. 1, 2 and 3. The average tariff value of these 3 scenarios was considerably lower than that used for Sale 48 analysis.
- Cost of offshore and onshore processing facilities, based on best information, is small in comparison to the pipeline cost. Therefore, for the preliminary analysis to assume no cost differences should not alter the cost summary.
- [138] It is not known if the tanker crews would be living outside of the study area.
- [139-
140] Five years is a relatively short-term delay. Proposed OCS Sale No. 48 oil and gas would not be on line until 1982 at the earliest. The SOHIO pipeline should be operational by then.
- [141] Each barrel of domestically produced oil will reduce the need for imported oil by that amount.
- [142-
143] The Withdraw the Sale section has been modified.
- [144] Flexibility to ease restrictions in appropriate cases are a needed tool for reasonable development to occur.

- [145] BLM's proposed Stipulation No. 6 states that pipelines will be required if they are technically feasible, environmentally preferable and entail no net social loss.
- [146] The Department of the Interior is in the process of developing air quality regulations at this time.
- See response [21] above.
- [147] A lease stipulation can only address a relationship between the lessee and the lessor. The Secretary of the Interior has no authority to require lessee to consult with state or local government. However, under the CZM Act of 1972, as amended, state government will participate in most aspects of OCS development in an advisory or participatory role.
- [148] These comments and responses have been deleted from the Final ES.
- [149] Where an operations base would be located is dependent upon the location of oil and gas fields. Until a marketable discovery is made, an exact location of such a facility cannot be made.
- [150] Development of existing Federal leases is covered in Section I.E.1 and 2. The Missile-X project has been added to Section I.E.
- The LNG facility proposal at Point Conception has been updated.
- [151] It was necessary to use California Department of Finance estimates to have a consistent base of projections for the study area.
- The impacts of proposed Sale No. 48 are broken out separately and the significance is stated in the ES.
- [152] The revenues have been updated to reflect Proposition 13.
- [153] Latest information (Hallinger Engineers Final Report 10-6-78) reports an estimated eight pumping stations for the Scenario No. 1 pipeline system. This pipeline from Las Flores to Los Angeles could employ approximately sixty workers. The Final Hallinger Report does not include any social or environmental impacts. See ES Section III.F for addition.
- [154] Exploration and development plans are reviewed by the Coastal Commission. If the Coastal Commission feels more data is required, it must be provided by the operator.
- [155] OCS resources are national assets to be used for the alleviation of mid-term national energy shortages.

- [156] The ES is not a justification document. It is an analysis of impacts that would occur if the proposed action were undertaken. Any addition to national energy supply is significant at this point in time due to our high level of imports.
- [157] Since OCS oil and gas are national assets, they are developed to meet national energy needs. The University of Oklahoma Study of Energy Alternatives is referenced in the EIS alternatives section. A complete reprint of the information from the University of Oklahoma Study concerning solar energy would not be appropriate. Additional references have been added to the FES alternatives section on new solar energy development.
- [158] The ES is not a justification document. It is an analysis of impacts that would occur if the proposed action were undertaken. By the time proposed OCS Sale No. 48 oil comes on line (1982), the SOHIO pipeline and other possible transportation routes should be in place.
- [159] Natural gas from the OCS would be a much less costly source of gas than LNG or foreign imports since gas is a biproduct of oil development. Foreign imports of natural gas and LNG would also add to our balance of payment problems.
- [160] The statement on page 1396 of the DES says that solar energy is an alternative for space heating. Coal-powered plants located in Utah or Arizona are a viable alternative to petroleum-fueled power plants.
- [161] Correction made.
- [162] The utility codes indicated in the 1977 map on Principal Electric Facilities of Southwestern Region (Federal Power Commission, Bureau of Powers) are as follows:
- SOCE Southern California Edison
- LOAN Los Angeles Department of Water and Power
- SADG San Diego Gas and Electric
- [163] This question is addressed in the revised section on mitigating measures.
- [164] The ARB summaries were checked and the number of exceedances at Santa Barbara State Street were five. This change is incorporated in the FES.
- [165] Such data has been incorporated into the FES.
- [166] Correction has been made as suggested.

- [167] The MX missile project has been added to the Final ES.
- [168] Table III.D.2.b-1 headings are explained in more detail in the text.
- [169] The visibility impact discussion has been expanded. However, no models are available from the U.S. EPA for assessing visibility impacts. Although sulfates and nitrates as well as humidity are thought to have impact on visibility, there is no generally accepted model which quantifies these impacts.
- The analysis presented does attempt to quantify the impacts of Sale 48 on visibility. In general, the time required for sulfate and nitrate formation would likely result in any visibility impacts from these pollutants being regional in nature. Thus, the Sale 48 emissions of SO₂ and NO_x compared to regional emissions of these pollutants would give an indication of any increase in visibility impacts from these pollutants. Since these emissions are small compared to regional emissions, the increase in impacts should be small.
- [170] These questions are addressed in the revised section on mitigating measures.
- [171] The maximum resource estimate scenario's air quality impacts have been included in the Final ES in Section III.F.1.
- [172] Emissions from peripheral activities such as employee vehicles, etc. were not computed specifically because they are so small that they are less than the uncertainties in the estimation of the major emissions.
- [173] Normal tankering refers to the most probable transportation scenario as described in Section I.A.2.
- [174] The selection of a representative site in Santa Barbara was based on (1) the ARB designation of data representativeness and (2) the number of other parameters measured at the site. Based on the designation of the Goleta data and parameters measured at Cathedral Oaks (Satelite), State Street was selected to represent the Santa Barbara area. Selection of sites in Ventura and San Diego were based on stations representative of the coastal areas, where offshore operations would most likely impact. Simi, Ojai, and El Cajon are all inland stations.
- [175] The adverse effects of pollutants on health was presented in a qualitative manner for all pollutants involved. The actual concentrations that produce hazards can be found in EPA publications on air quality criteria.

In response to the above question, the following is from "Air Quality Criteria for Nitrogen Oxides" published in 1971:

Exposure to NO₂ has been explained in six degrees, with corresponding clinical syndromes: (1) at 940 mg/m³ (500 ppm) or higher victims develop acute pulmonary edema and die within 48 hours; (2) at 564 to 752 mg/m³ (300 to 400 ppm) pulmonary edema with broncho-pneumonia develops and death ensues in 2 to 10 days; (3) those exposed to 282 to 376 mg/m³ (150 to 200 ppm) develop bronchiolitis fibrosa obliterateans, which is fatal in 3 to 5 weeks; (4) exposure to 94 to 188 mg/m³ (50 to 100 ppm) produces bronchiolitis with focal pneumonitis lasting 6 to 8 weeks, followed by spontaneous recovery; (5) individuals exposed to NO₂ in the range of 47 to 141 mg/m³ (25 to 75 ppm) develop varying degrees of bronchitis and broncho-pneumonia, but recover completely; and (6) chronic intermittent exposure to concentrations of NO₂ in the order of 18.8 to 75.2 mg/m³ (10 to 40 ppm) may produce chronic pulmonary fibrosis and emphysema.

- [176] All criteria pollutants were discussed in the existing environment. NO is not a criteria pollutant. NO₂ spatial variability is indicated in figure II.H.1-7.
- [177] Data back to 1963 were checked for annual averages of SO₂ and the general pattern of isopleths shown in the figure are representative of impact areas in the Los Angeles basin. A slight modification of isopleths in the Long Beach area was made to better reflect sources in that region.
- [178] Section was revised to include a more detailed discussion of hydrocarbons.
- [179] According to recent data, the only station operated in Monterey county monitoring for hydrogen sulfide is at San Ardo. This station operates only infrequently and on a sporadic schedule. In addition, this particular site is located generally downwind of the San Ardo oil field and is thus extremely source-oriented. For the monitoring conducted to date for the year 1978, there are some 2814 1-hour values recorded, and of those only 0.7 percent currently exceed the applicable CARB Ambient Air Quality Standard for H₂S. For 1977 there are 3677 1-hour values recorded, and of those 18.8 percent exceed the applicable standard. It can be concluded, therefore, that the Ambient Air Quality Standard for H₂ is being exceeded on occasion at the San Ardo site, but the data is biased to a certain extent by its proximity to a large oil field.
- [180] Since the study deals with operations in which lead is not a significant pollutant, further analysis of it would not be appropriate.

[181] Seven spot checks of ethelyne were made in 1975 in Downtown Los Angeles as a part of hydrocarbon analysis program. The levels of ethelyne measured serve as a qualatative comparison between two different seasons, winter and spring. A comparison of current levels with past levels of ethelyne is beyond the scope of this report. However, this data is available in a series of publications released by the ARB. Damage threshold values of ornamental plants can vary with time of exposure, type of plant, age of plant, and a variety of other factors. More information can be obtained in a report on Air Quality Criteria for Hydrocarbons published by the U.S. Department of Health, Education and Welfare.

[182] The monitoring on San Nicolas Island was preformed in 1976. This is indicated in the FES.

[183] According to the ARB summaries, the most representative of the three Santa Barbara Stations appears to be State Street. The following table summarizes the stations with the ARB designations.

<u>ARB Designation</u>			
Station	Year	Representative	Not Representative
State	1973	*	
Satelite	1973		*
Goleta	1973	No data	
State	1974	*	
Satelite	1974	*	
Goleta	1974	No data	
State	1975	*	
Satelite	1975	*	
Goleta	1975		*
State	1976	*1	
Satelite	1976	*1	
Goleta	1976	*1	
State	1977	*1	
Satelite	1977	*1	
Goleta	1977	*1	

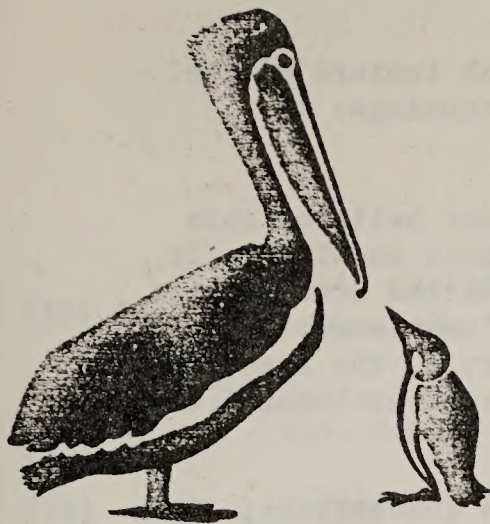
*1. Data representativeness based on total samples during the year.

*2. Data from Chemilumenescent method for January-September. UV photometry method for October-December.

[184] The AeroVironment Report presented a brief overview of tankering activities. Detailed activities can be found in the Environmental Statement.

[185] The stationary sources and ships within the 3 mile limit are under the jurisdiction of the AQMD. This authority is derived from the Mulford-Carrell Act.

- [186] In 1975, the ARB made spot checks of ethylene in the Downtown Los Angeles area as part of a hydrocarbon analysis program.
- [187] The word "human" has been changed to "non-natural" in the FES to emphasize the exclusion of naturally occurring CO sources.
- [188] Concentrations for TSP at Riverside were checked in the ARB summaries and found to be correct. Further data is available in the ES. It should also be noted that the word "inert" has been deleted in the FES.
- [189] The standard for sulfates set by California is discussed in the draft statement. In addition, the FES contains figures and tables describing sulfate spatial variability. In response to the second part of the question, the DES goes into more detail than the executive summary in which trends are discussed and displayed.
- [190] No offshore gas treatment was assumed in the scenarios that were modeled.
- [191] Emission inventories for 1975 were used for comparison purposes only. The analysis projected emissions and background concentrations to 1986.
- [192] One tanker was being loaded during a single 24-hour period.
- [193] Refer to response [190] above.
- [194] The dry holes drilled in the outer banks do not necessarily indicate that less oil and gas exists in those banks. More information will be needed before the projected estimates can be officially reduced.
- [195] This section has been updated.
- [196] Corrected as indicated.
- [197] The table has been updated. The onshore pipeline is discussed in Section III.F.5.



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International
Bird Rescue Research Center
Aquatic Park, Berkeley, Ca. 94710 • (415) 841-9086

November 6, 1978

Office of the Manager
Pacific Outer Continental Shelf Office
Bureau of Land Management
7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

In response to your request for comments on Draft Environmental Statement. No. 48, Volume 2 of 4, we offer the following criticism on "Impact on Seabirds":

- | | | |
|------|-----|---|
| [1] | 868 | "Pelagic seabirds" is redundant. |
| [2] | | In Southern California the main damage is going to be to wintering birds. |
| [3] | 869 | Irritation of the eyes can occur with some highly refined oils. It is usually self-limiting and requires no treatment. Are the membranes mentioned the nictitating membranes? |
| [4] | 870 | Table III.C.d-1
No data are given to indicate that propeller hits will cause significant mortality in seabird populations. |
| [5] | 871 | Pedestrian traffic at sea? ! |
| [6] | | Severe oiling will prevent flight in birds. However, many birds with minimal to moderate oiling will be able to fly (Hartung, 1964, Wilson, 1960). |
| [7] | | The statement "few physiological studies have been done" demonstrates a poor literature search. |
| [8] | | "Blistering of the alimentary tract" does not describe the often hemorrhagic enteritis some authors (Hartung, 1964, Clark, 1971, Snyder et al., 1971) believe to be caused by the ingestion of oil. |
| [9] | 872 | Cormorants have been among the least susceptible to oil world wide. |
| [10] | | Mention should be made of the work done by Albers (1977) demonstrating reduced hatchability in mallard eggs contaminated externally with very small amounts of fuel oil. |

This table which ought to be a particularly important feature of the report is a travesty. It suffers from two main shortcomings: 1) incompleteness and 2) inconsistency.

- [11] 1. Incompleteness. It is not stated whether the author believed this table to be a comprehensive compilation of available knowledge. It clearly is not. Among the significant episodes omitted are at least three on the Pacific coast that should have been mentioned. These are A, the Seagate wreck off the Washington coast; B, the Anacortes diesel spill, 1971; and C, an incident that involved at least 5,000 murres off the California coast in 1975.
- [12] 2. The "estimated no. killed" column is hopelessly inconsistent. Some of the figures given e.g. 3686 for Santa Barbara 1969, and 7,000 for San Francisco 1971, are numbers of birds observed to be affected. Others, e.g. 10,000 to 31,000 for Chesapeake Bay 1976, are clearly estimates of the numbers believed to be affected. In some cases, (e.g. Smail et al. 1972) estimates of total mortality were given in the source and not used by the author. The estimate of 30,000 given for the Torrey Canyon was later raised to 40,000 to 100,000 (Bourne, 1970).

As it stands the table is worthless because the differentiation between observed and estimated mortality is not made.

- [13] It is difficult to believe that anyone presuming to write about seabirds should not know that the species in Britain known as the "common guillemot" and in North America as the "common murre" are one and the same. The confusion in the column headed "dominant species" makes it clear that the author did not know this. Why is the information in this column incomplete? It is in the literature.

- [14] In the introduction to this table it is stated (inaccurately) that the estimates "are based primarily on beach counts of oiled birds." The chief glaring omission from this report is any mention of what should clearly have been its prime data base, the California Beached Bird Survey. The report was written without even a mention of the most solid and consistent body of data available on oiled bird mortality. The absence of these data reduce the report from a potentially useful document to a loose speculative compilation whose usefulness to the Bureau of Land Management or to the taxpayers of the United States is doubtful. The information exists. Why wasn't it used?

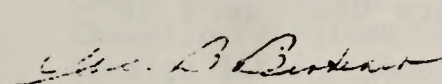
- 374 The section on the rehabilitation of oiled birds is impossibly out of date.
375 Due to lack of research the author assumes that no progress has been made in this field since 1971. Research in cleaning and husbandry techniques by the International Bird Rescue Research Center, J.T. Naviaux, the Research Unit on the Rehabilitation of Oiled Seabirds, P.B. Stanton, and C. Swennen over the past eight years has led to the development of a technology that has increased release rates to above 50% in many instances and lowered the time spent in captivity to an average of one week. The publications of these individuals and groups should have been cited.
- [15]

- [16] "Of the estimated dead and dying birds that were brought to cleaning stations in mid-January, 1971, some 200 were still alive in late May...". This sentence is preposterous! How can dead birds be alive?

- [17] 375 Koski and Richardson (1977) provide an excellent review of deterrent techniques including the response of birds to aircraft noise.
- 377 Table III.C.d-3
- [18] Only ducks, geese and swans are considered waterfowl.
- [19] Cormorants are least susceptible to oiling.
- [20] Pelicans are susceptible to oiling.

" Impact on Pelagic Birds " of the Draft Environmental Statement is poorly researched and badly written. The literature search was haphazard at best and the information presented is often incomplete, inconsistent, misleading and out of date. We advise that this section be rewritten by someone more familiar with seabirds, oil and the English language.

Sincerely,

 John Smail

Alice B. Berkner

John Smail

Responses To:
Bird Rescue Research Center

- [1] Error has been corrected.
- [2] See No. 7 in Section V.A of the ES.
- [3] The word "nictitating" has been added to the statement.
- [4] Table III.C.d-1 is not necessarily a listing of documented impacts, but it is a listing of potential hazards that may or may not ever occur.
- [5] Statement has been corrected.
- [6-7] Comment is noted.
- [8] The word "hemorrhaging" has been added to the sentence.
- [9-10] Comments are noted.
- [11-13] Table III.C.d-2 has been corrected and updated.
- [14] The introduction to Table III.C.d-2 has been corrected. The limitations of beached bird survey data are discussed in Section III.C.1.d.ii of the ES.
- [15] This section has been updated and comments have been included.
- [16] Statement has been corrected.
- [17] Comment is noted.
- [18-20] Table III.C.d-3 has been corrected as suggested.



OGLE PETROLEUM INC.

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SANTA BARBARA, CALIFORNIA 93108

November 15, 1978

Mr. William Grant
Bureau of Land Management
Pacific OCS Office
300 North Los Angeles St., Rm 712
Los Angeles, California 90012

Re: Comments on the Draft Environmental Statement for
OCS Sale No. 48.

General Statement:

During the last two years Ogle Petroleum Inc. (OPI) has, for its own account and for the 25 independent companies listed below, been actively involved in the acquisition and analysis of regional geological, geophysical and engineering data pertaining to the Santa Barbara Channel.

Amerada Hess Corporation
Aminoil U.S.A. Inc.
Bow Valley Exploration (U.S.) Inc.
Cabot Corporation
Champlin Petroleum Co.
Decalta International Corporation
Gas Producing Enterprises, Inc.
General Crude Oil Company
Golden Eagle Refining Co.
Hamilton Brothers Oil Co.
Houston Oil & Minerals Corp.
Husky Oil Company
Ladd Petroleum Corporation

Louisiana Land & Exploration
Natomas Exploration, Inc.
Nepco Exploration, Inc.
Sabine Production Company
Santa Fe Minerals, Inc.
Southern California Gas Co.
Texas Eastern Exploration Co.
Texas Pacific Oil Company, Inc.
Union Texas Petroleum
U. S. Steel Corporation
Weeks Petroleum Co.
Williams Exploration Company

Currently, OPI is operator for an 8-company exploration and bidding group, listed below, acquiring and analysing similar but more detailed information in preparation for Sale No. 48.

Bow Valley Exploration (U.S.) Inc.
Nepco Exploration Corporation
Ogle Petroleum Inc.
Sabine Production Company

Santa Fe Minerals, Inc.
Southland Royalty Company
Texas Eastern Exploration Co.
Weeks Petroleum Corporation

OPI and Co-Venturers agree with the goals of the OCS Lands Act and those of the National Energy Plan which relate to the orderly development of OCS petroleum resources and plan to participate in the realization of these goals by taking an active part in OCS Lease Sale No. 48.

OPI technical personnel have studied the DES for OCS Sale No. 48 and find it to be the most comprehensive and best documented environmental statement ever produced by the Pacific OCS Office of the Bureau of Land Management. We are not in agreement with all of the conclusions presented in the DES but regard most of the work to be as objective as is possible in view of the often subjective and controversial nature of the various subjects contained in the environmental statement.

Specific Comments:

The following comments are directed toward those sections of the DES where we feel we have expertise or particular concerns.

- [1] Chapter I.A.2.p.5: "Exploratory drilling could begin during the tentative sale year (if the sale was held in the first half of the year) and continue through Year Nine." Comment: Exploration will not begin in the sale year, 1979, due to the fact that permit applications currently require 5 to 6 months for processing and the newly mandated participation of the California Coastal Commission adds one to six months to this timetable.
- [2] Chapter I.D.2d.p.34: Since release of the DES the issue of the "consistency portion of CCZMP.....being contested.....in Federal Court" has been resolved in favor of the California Coastal Commission. Comment: The time provided for State determination of "consistency" is set out in Sec. 307(c) of the Federal Coastal Zone Management Act and can range from 30 days to six months to infinity if appeals are lodged on either side.

Past performance of the California Coastal Commission indicates that the Commission will use all of the time available to reach any decision that is of controversial nature. Consequently, we believe that the Secretary should use his discretionary power to stipulate that time lost to the State for permitting and for appeals will be added to the exploratory term of the lease.

Chapter VIII Alternatives to the proposed action, p.1301:

"A. Hold the Sale in Modified Form

1. Establish 3/4 mile and Buffer Zones around State Oil Sanctuaries and to protect marine bird and mammal rookeries."

- [3] Comment: A buffer zone is unwarranted because (1) as defined by the state of California (DES Sale 48, Chap. III.C.9.) no effective drainage can occur over a distance of 1/4 mile. Additionally, drainage is a politically and economically resolvable issue reducing the problem to a negligible status and (2) regarding rookeries, the addition of a 3/4 mile strip to an existing 3 mile zone does not appear to substantially change the level of protection of the rookeries. However, exploratory and possible production activities will be moved seaward, usually into deeper waters with attendant cost increases and increased operating hazards.

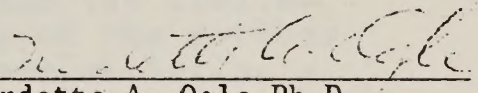
- [4] "2. Delete Santa Barbara Channel Area: The Santa Barbara Channel area proposed for leasing consists of 108 tracts, numbered 001 through 108 and aggregating 220,437 hectares (544,693 acres). Estimated most probable undiscovered recoverable reserves are 300 million barrels of oil and 300 billion cubic feet of gas. This is 49.8 percent of the total tracts proposed and 42 percent of the estimated oil reserves."

Comment: The foregoing figures do not reflect the geologic realities of Sale 48. Of the areas offered, only the Santa Barbara Channel and San Pedro Bay areas are known petroleum provinces. The elimination of the Santa Barbara Channel area will reduce much more than 42 percent of the potential oil reserves. It is possible that the action would remove nearly all of the real petroleum discovery potential of Sale 48.

The above comment also applies to Chap. VIII.A.8. and 10.

Sincerely,

OGLE PETROLEUM INC.


Burdette A. Ogle Ph.D.
President

BAO/cm

Responses To:

Ogle Petroleum Inc.

- [1] Permit applications for exploratory drilling will be processed simultaneously with the Coastal Commission review process which has been reduced to three months by the 1978 OCS Lands Act Amendments. It is possible that exploratory drilling could begin in 1979.
- [2] Correction made.
- [3] A three-quarter mile buffer could add valuable response time, in case of an accidental oil spill, for clean-up equipment to be deployed between a spill and rookeries.
- [4] Comment noted.

November 14, 1978

Mr. William E. Grant, Manager
U.S. Department of the Interior
Bureau of Land Management
Pacific OCS Office
300 North Los Angeles St.
Room 7127
Los Angeles, CA 90012

Dear Mr. Grant: OCS Sale No. 48 and Draft
 Environmental Statement

As a concerned citizen and an experienced geologist and environmental scientist, I am writing to endorse OCS Lease Sale 48 in the strongest possible terms, and to urge the Department of the Interior to proceed with this sale without delay. In my judgment, the substantial national economic benefits to be gained far outweigh the limited environmental risks, particularly in view of the serious economic consequences the U.S. is now experiencing as a direct result of increasing imports of foreign crude oil.

I have carefully reviewed the Draft Environmental Statement (DES) for the sale and feel BLM is to be complimented on the document's comprehensive and generally realistic treatment of the potential environmental effects. There are, however, some parts of the document that, in my opinion, require modification for the Final Environmental Statement (FES), as is explained in following paragraphs.

[1] Probably the single most important aspect of the DES that requires modification is the document's overall negative tone which is primarily the result of overemphasis on negative effects, and minimal discussion of important benefits that will result from the sale. This overemphasis is particularly true for many parts of Section III: Environmental Impacts of the Sale, which present exhaustive listings of possible adverse impacts, but only minor discussion of the limited probability of these impacts actually occurring.

Further, this generally negative tone is reinforced by: (a) the sequence of presentation within sections, and (b) the technical literature discussed and cited. Examples of (a) and (b), and of the resulting negative bias they build into the DES follow.

Regarding sequence of presentation, the following examples illustrate the problem. Throughout most of Section III-C: Impacts of the Proposal Offshore (which is more than 200 pages in length), each subsection enumerates and discusses possible impacts in considerable detail; but only in the concluding

summary paragraphs many pages later does the reader learn that many or most of these impacts are unlikely, or, of only minor significance.

- [2] • For a specific representative example, see p. 913 "Impact on Kelp Beds" which states: "Oil deleteriously affects kelp by damaging cell membranes, reducing translocation, and reducing photosynthesis. ...". Thereafter follows about nine pages of elaboration, discussion, and qualification until, on p. 921, the conclusion is reached that: "Little evidence exists that kelp is harmed by oil." Because the average reader won't plow through 10 pages to find this last statement, he comes away remembering the lead sentence: "Oil deleteriously affects kelp... ." which was not the intended message of this subsection.
- [3] • For another example of this same presentation technique, see p. 954 et seq., "Impact on Water Quality," which consists of 10 pages of enumeration and discussion of possible impacts before reaching the conclusion that "The impact of the proposal on water quality is minor over the life of the proposed development."

As to technical literature citation, in several sections the literature cited and discussed is not up to date. Thus, these sections do not reflect important recent work which in several cases would significantly modify the conclusions reached. This deficiency reinforces the negative tone of the impact sections. The following examples illustrate my point.

- [4] • With respect to use of chemical dispersants (for example, p. 864-5, 867, and 876), the discussion treats the Torrey Canyon spill and describes effects of first generation dispersant usage ten years ago. A great deal of research has been done and much has been learned in the interim. Second and third generation low toxicity dispersants are now available, are used in more than 30 countries, and are accepted by EPA. Pertinent references include: Cowell (1977), Fitzgerald (1977), Garnett and White (1977), Norton et al. (1977), USEPA (1978), and Smith and Holliday (in press).
- [5] • With respect to the effect of drilling fluids and formation cuttings (for example, p. 951, 953, 955, 958), the bulk of the references cited are from the early 1970's; the discussion should be revised to include the conclusions presented in Ray (1978), as well as in Zingula (1975), Beckett et al. (1976), Monaghan et al. (1976), Zingula and Larson (1977), Dames & Moore (1978), and the results of the Ecomar (1978) Tanner Bank study.

November 14, 1978

This Ecomar report, incidentally, is cited elsewhere in the DES.

I trust that the preceding examples illustrate why the presentation technique used and reliance on outdated literature impart a negative tone to the impacts section of the DES.

Having personally participated in the preparation of a number of Federal DESs and more than a hundred California EIRs, I am convinced that to convey the key information to the reader as effectively as possible, the conclusions regarding impacts should be stated at the outset of each section. This technique would materially improve the FES and would help correct the negative tone discussed above.

Miscellaneous Comments:

[6] The section on impact on marine food web (p. 947 to 949) should be revised to include the results of the work by Karinen and Rice (1974), Rice et al. (1975a and b), and Rice et al. (1976) on uptake and depuration, as well as papers in Wolfe (1977).

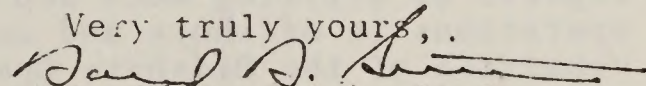
[7] Various sections of the report dealing with the effects of petroleum on the benthic and intertidal communities should take into account the results presented in Straughan (1976); see also Kanter et al. (1971), Kanter (1974), and Hadley (1977).

[8] In the section discussing impacts on offshore cultural resources (p. 973 et seq.), the discussion should address the likelihood of transgressive surf zone reworking of aboriginal sites as well as subsequent burial by sedimentation following sea level rise. In this context, the conclusions of Edwards and Emery (1977) regarding why submerged aboriginal sites are unlikely to be preserved should be included.

[9] Concerning maximum water depths for platform use, (see discussion p. 541), this section should mention installation of Shell's Platform Cognac, a drilling and production platform, which was completed in Summer 1978 in 1020 to 1050 feet of water off the Louisiana coast (Metzler, 1978).

The various references mentioned in this letter are cited in full in the attachment; if appropriate, I would be pleased to assist BLM in obtaining copies of these papers.

I appreciate the opportunity to review this DES and sincerely hope that these comments will be helpful in preparation of the Final Environmental Statement.

Very truly yours,

David D. Smith, Ph.D.
Environmental Scientist
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La Jolla, CA 92037

Attachment

1671

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- Zingula, R. P. and D. W. Larson, 1977. Fate of drill cuttings in the marine environment. Proc. Offshore Technology Conf., Houston, TX, May 2-5, OTC 3040, p. 553-556.

Responses To:

David D. Smith

- [1] The purpose of Chapter III is to provide information on the potential impacts of the proposed action. The benefits of the sale alluded to in the comment are included in the analysis of the net social benefits (including the environmental considerations) presented in the Secretarial Issue Document (SID) and in Section III.E.15 of the ES.
- [2] We have found most readers read the conclusion or summary at the end of a section rather than the beginning.
- [3] Comment noted.
- [4] The discussion regarding the use of chemical dispersants has been revised. Your comments and the list of references are greatly appreciated.
- [5] Comment noted.
- [6] The work of Rice was done on cold water species geographically far removed from Southern California and adds little of real significance to the work of Anderson and co-workers. References from the Wolf-edited symposium were used in this Food Web section.
- [7] Reference to Kanter (1974) has been included.
- [8] A discussion has been added to the ES.
- [9] Discussion of Shell's Cognac platform has been added to the ES.

UNIVERSITY OF SOUTHERN CALIFORNIA
UNIVERSITY PARK
LOS ANGELES, CALIFORNIA 90007

DEPARTMENT OF BIOLOGICAL SCIENCES

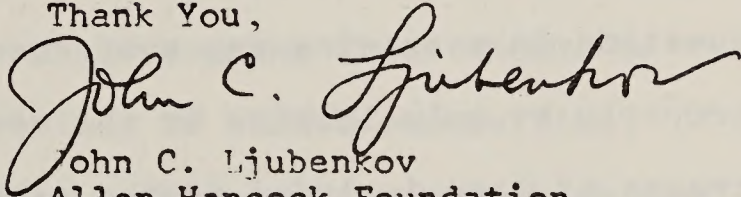
November 15, 1978

William E. Grant
Bureau of Land Management
Pacific OCS Office
300 N. Los Angeles Street
Room 7127
Los Angeles, Ca. 90012

Dear Mr. Grant,

Enclosed is a copy of my oral presentation before the
Environmental Statement Public Hearing on October 27, 1978,
in Long Beach. If you have any further questions, please
feel free to contact me.

Thank You,

A handwritten signature in cursive script, reading "John C. Ljubenkov". The signature is fluid and extends to the right.

John C. Ljubenkov
Allen Hancock Foundation

REMARKS CONCERNING OCS SALE NO. 48

delivered by

John C. Ljubenkov

Allen Hancock Foundation

University of Southern California

October 27, 1978

It is not advisable to continue leasing offshore areas for the purposes of oil exploration and drilling, because too little is known in a scientific manner to make intelligent management decisions. The DES is inadequate as a document for policy determination for a variety of reasons which may be summarized as follows: 1) A baseline study, such as was funded by the BLM, cannot answer realistic management questions, because by definition, it is only a preliminary study; not a study which focuses on important management questions: 2) There was never a coordinated study of events in the watermass and the benthos, 3) Seasonal variation of the biota, a critical question in assessing any subsequent impact, was studied improperly by only looking at the results from one year; 4) Large tracts of land included in the sale have never been studied: 5) The results of the second year study of the Bight (information that would be of great value to the public at this hearing) are unavailable, even to scientists at this moment; 6) The biological statements included in the DES contain many significant and egregious errors.

During the course of the first year studies, on which

the DES is presumably based, we biologists were constrained to a strictly shotgun approach to sampling. Our samples were scattered everywhere because the whole region presented a giant question mark biologically. In the second year, samples were taken in February and August, at a few selected sites. Our total sample size was 117m^2 , while the size of the borderlands is about $23,000\text{km}^2$. This would be comparable to dropping a box-corer (which collects an area of 0.15m^2) in the middle of Long Beach and then trying to interpret what the population is like, along with their social structure and their diverse economy. I re-iterate, it remains impossible to answer any questions relating to the biological problems of oil extraction with data from the BLM-OCS program.

The California Cooperative Fisheries Investigations (CALCOFI) were presumed to contain enough information on planktonic events, therefore, BLM did not include this as a field of study. While these are excellent studies, they do not cover the same time frame and there is no way to mesh this with our more recent benthic information. The correlation of these aspects is crucial to evaluations of fisheries impacts.

A prime question behind any government study should be an assessment of seasonal variation of biotic communities. The reason is that it provides a background against which any supposed impact can be measured. However, only two groups of samples taken within the same year were collected with this type of information in mind, and it is obvious that this represented a statistically invalid basis for prediction. It is too bad that these studies were not begun when BLM and the oil companies knew there were going to be sales, because

we might have some hard answers today.

Another problem in these studies is the lack of consideration of large areas included in the sales. A prime example of this is all of the tracts west of Point Conception. Not only has no sample in the present study been taken there, but in terms of any scientific knowledge of the area there is little of value. Yet this area will be much exploited, considering significant finds of oil in adjacent areas, to the north.

At this time, none of the data from the second year is available for public consideration at this hearing because they are not in final form and are still in the hands of Science Applications Inc. I would wager that it is hard for BLM personnel to see complete copies right now. A further consideration in the interpretation of the DES, is the knowledge that it does not represent the data and scientist's conclusions, but rather, an interpretation of scientific data by the drafters of the DES. In many instances this led to sophomoric misinterpretation. For example, Visual #7 refers to the Amphiodia urtica association as a "deep water" community, whereas, it is characteristic of shelf depths. Or again, "Data on the number of species and specimens indicate that there may be no significant difference between the Island and Mainland shelves". However, data from both the first and second years tend to show major differences. The insular shelf has more species, more mass of living material, more rare or geographically restricted species, and more fisheries potential than any comparable area on the mainland shelf. It is on account of errors such as these, quite apart from any failure

of study design, that the DES must be dismissed as an inadequate document.

In summary, these criticisms are a brief review of objections held by myself and many other biologists who worked on the actual studies themselves and, consequently, have first hand knowledge of their defects. Before any further drilling is allowed, these objections will have to be overcome by well designed studies that attempt to; 1) construct ecological models of major drilling areas which emphasize the flow of energy and nutrients through the affected areas, 2) seek to understand the relationship between fish and fisheries and the benthic environment and, 3) elucidate the actual effect of oil operations on the substrate. Until studies like these are performed, there will never be a rational basis for resource decisions on our coastline. When one balances only forty days of oil against the potential hazard to the biological resources of southern California, it seems quite premature to consider leasing any more areas of our coast until we can be sure the effects will be minimal. It is the least we can do as sentient creatures.

Responses To:

John C. Ljubenkov

It is difficult to determine the level of information required before an activity should be approved or the amount one can extrapolate from studies conducted in other areas.

The examples cited in the ES as "not representing the data and scientist's conclusions" actually came from the Final Report of Fauchald and Jones. Table II.E.3.a.i-3 showing the number of species and specimens is a compilation of these data from each of the HDSA of the first year's study and do not support the statement that the insular shelves have more species and individuals. Perhaps the second year data show the differences. There were different species from the island shelves and, as may be expected, are not as widely dispersed along the mainland shelves. To say they are more restricted may be somewhat premature without samples taken from the continental shelf north of Point Conception. Some of these differences do show up, as indicated in POCS Reference Paper No. III, even when only the most numerous and frequent species were considered. Conversely, when considering the most numerous and frequent species from all first year mainland and island shelf stations, the lists (Tables II.E.3.a.i-1 and 2) are surprisingly similar.

The "deep water" category which lists Amphiodia urtica as a characterizer species was provided by Fauchald and Jones for the deepest assemblage on San Miguel Island (see p. 178 of Fauchald and Jones, 1977). The depth range of this association of somewhat less than 200m to 500m is somewhat deeper than normal for this species, but a 17.7 specimens per occurrence (highest of all species) and 60 percent frequency strongly indicates it is a characteristic species.

The arbitrary classification of assemblages in terms of relative depth is misleading and, although the precise depth ranges are difficult to obtain, in the FES we have added an errata sheet to the visuals which lists approximate depths of the assemblages.

5276 Hollister Avenue
Suite 2-S

Santa Barbara, California 93111

November 2, 1978

Mr. H. Emmrich
Environmental Assessment Manager
Bureau of Land Management
300 N. Los Angeles St., Room 7127
Los Angeles, California 90053

Dear Mr. Emmrich,

The purpose of this letter is to supply to BLM supplementary documentation which could not be duplicated in time for inclusion with my testimony on OCS Sale No. 48.

At the Oct. 23 public hearing in Santa Barbara on the Draft Environmental Statement (DES) for OCS Sale No. 48, I assisted the County of Santa Barbara (Mr. Al Reynolds) in commenting on the air quality portions of the DES. My written comments were included in Mr. Reynolds' submission, and I reported verbally on my knowledge of other studies of the ozone impacts of offshore oil operations. I also mentioned the results of my preliminary assessment of the impacts of OCS Sale No. 48 on Santa Barbara ozone levels as determined using the EPA EKMA method.

The ERT report "Updating and Analysis of Air Quality Impacts of Regional Transportation Plans for Santa Barbara County," prepared by me and my former colleagues at ERT, used the EKMA method to establish baseline projections of ozone air quality in Santa Barbara County. (A copy of this report was submitted to the OCS panel in Santa Barbara on Oct. 23.) Using the basic data and methods of the ERT report, which are

also being used in the preparation of Santa Barbara's Air Quality Attainment Plan, I have calculated the expected ozone impacts of OCS Sale 48 in the crucial years out to 1987, the final date for attainment. This brief analysis includes emissions of total hydrocarbons (THC) and oxides of nitrogen (NO_x) from project sources, as compiled from information in the Aero-Vironment Report (Nov. 1977), and from induced vehicular travel based on the population increments stated in the DES. Reactive hydrocarbons (RHC) were derived from THC using the methods in the ERT report.

Table A summarizes the annual average emission contributions of the project, the baseline emissions and air quality on the South Coast without the project, and the RHC and NO_x emissions and ozone air quality to be expected with OCS Sale 48. Figure A shows the resulting reversal of the projected steady improvement when development of the Sale 48 tracts is added. The baseline regional emissions in Table A are interpolated from Table 3-8 and the baseline ozone projection in Fig. A is taken from Fig. 5-1, both in the ERT report. The ERT analysis went on to show the magnitudes of the RHC emission reductions required to achieve the ozone standard in 1982 and 1987 (See Table 5-1). Table 5-2 summarized the RHC emission reduction potential of three major emission control efforts which would at least bring the area close to the proposed 10pphm standard in 1987. However, Table B (attached) compares these potential emission reductions with the contributions of OCS Sale 48, showing that the project would completely nullify the gains purchased at considerable expense in these three programs.

Thank you for permitting me to add the results of this brief analysis to my submission on behalf of the County of Santa Barbara.

Very truly yours,

Richard A. Nordsieck

Richard A. Nordsieck
El Camino Research

cc: Albert Reynolds
John English
C. Ann Terry

TABLE A

Projected Baseline and OCS-48 Emissions and Air Quality
for the Santa Barbara South Coast
(Tons per day)

		YEAR					
		1982	1983	1984	1985	1986	1987
Automotive	Δ RHC	0.012	0.020	0.025	0.041	0.046	0.050
Project	Δ RHC	0.23	0.97	2.00	3.16	3.70	3.64
Total	Δ RHC	0.242	0.990	2.025	3.201	3.746	3.690
Automotive	Δ NO _x	0.016	0.030	0.041	0.074	0.093	0.118
Project	Δ NO _x	0.47	1.99	4.10	6.48	7.58	7.46
Total	Δ NO _x	0.486	2.020	4.141	6.554	7.673	7.578
Baseline	RHC	13.66	12.94	12.22	11.50	10.78	10.06
Baseline	NO _x	15.82	15.48	15.13	14.79	14.44	14.10
Baseline	O ₃ (pphm)	19.2	18.7	18.2	17.6	17.1	16.6
Incl. Sale 48	RHC	13.90	13.93	14.25	14.70	14.53	13.75
Incl. Sale 48	NO _x	16.31	17.50	19.27	21.34	22.11	21.68
Incl. Sale 48	O ₃ (pphm)	19.4	19.8	20.5	21.2	21.1	20.4

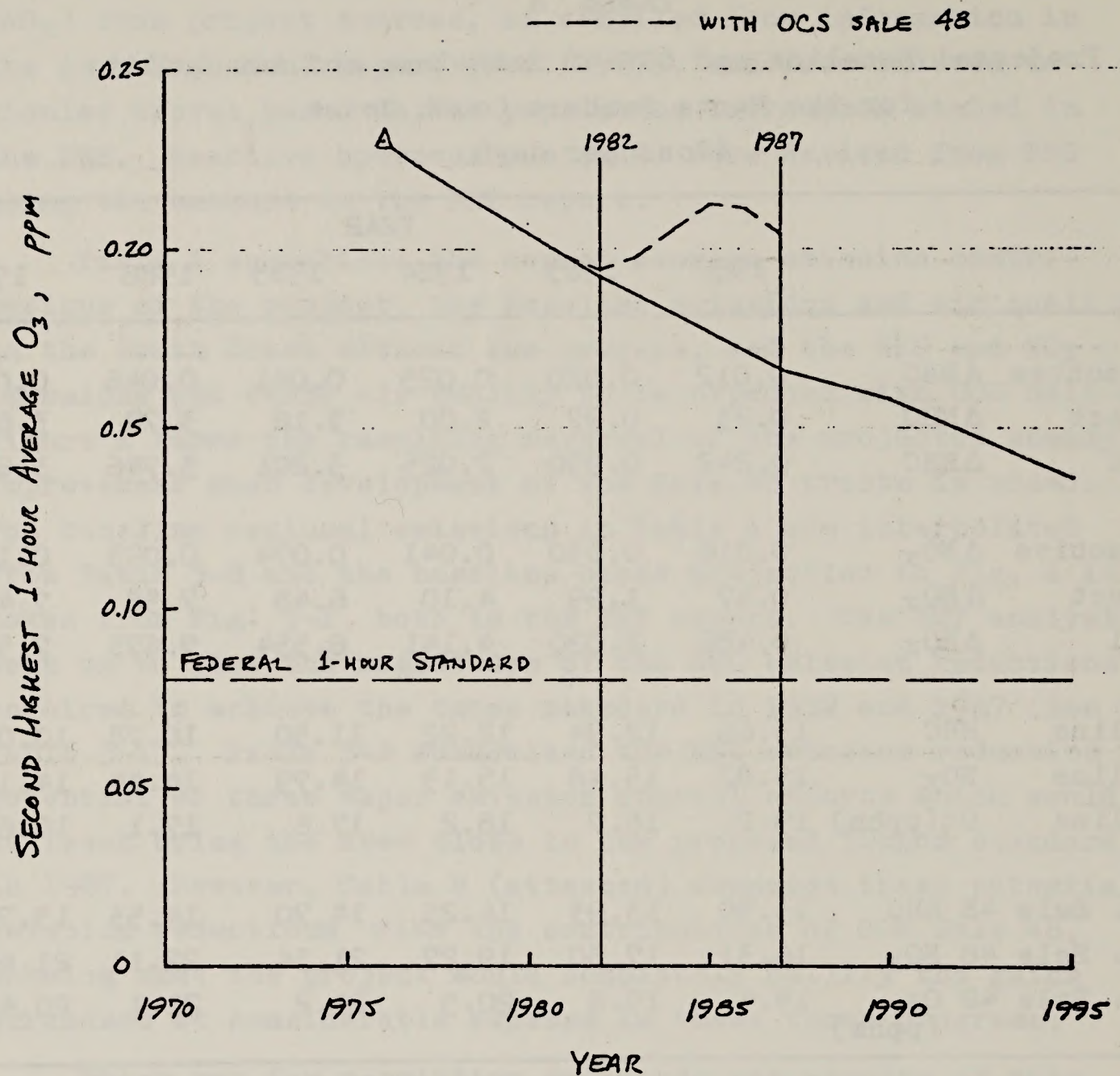


FIG. A EFFECT OF OCS SALE 48 ON THE BASELINE PROTECTION OF SECOND-HIGHEST HOURLY AVERAGE OZONE CONCENTRATIONS IN THE SANTA BARBARA SOUTH COAST REGION

TABLE B

Comparison of RHC Emission Increments
Due to OCS Sale 48 with Potential Emission
Reductions Needed to Approach Air Quality Standards

Year	OCS Δ RHC	Phase II V.R.	Light-Duty Vehicle I/M	Crude Oil Pipeline	Total Reduction	Net Reducti
1982	.242	0.98	1.42	0.52	2.92	2.68
1983	.990	0.99	1.43	0.61	3.03	2.04
1984	2.025	0.99	1.44	0.70	3.13	1.10
1985	3.201	1.00	1.45	0.80	3.25	0.05
1986	3.746	1.00	1.46	0.89	3.35	-0.40
1987	3.690	1.01	1.47	0.98	3.46	-0.23

Response To:

Richard Nordsieck, El Camino Research

The analysis presented in the Final ES quantifies the impact on ozone air quality resulting from Sale 48 activities. The impacts are small because the emissions from Sale 48 are from sources spread throughout the Santa Barbara Channel.

The analysis presented by Mr. Nordsieck is based on use of a photochemical air quality model, EKMA, which was designed for use as a tool for urban planning. The EKMA model relates morning concentrations of NO_x and NMHC in the urban core to resultant downwind peak O_3 concentrations in the afternoon. For future years, these initial NO_x and NMHC concentrations in the urban situation are often estimated by scaling present-day concentrations with the expected ratios of future to present emissions. Such scaling is only appropriate if all of the emissions are in the same geographic area, at a location which is several hours of wind transport upwind of the receptor of interest.

The application of EKMA for the assessment of Sale 48 photochemical impacts requires some caution because all of the new sources would not be within the existing urban source region and would thus not all contribute to the morning concentrations in the same air mass.

Mr. Nordsieck appears not to have recognized the consequences of this spatial distribution and thus he erroneously related worst-case Sale 48 emissions from sources located 3 to 15 miles offshore (and up to 30 miles from the monitoring stations in Santa Barbara) to increases in morning pollutant concentrations in Santa Barbara. The impact of these Sale 48 emissions on morning NO_x and NMHC concentrations should not be based on a direct ratio with total county emissions. Sale 48 emissions are offshore and not close to the Santa Barbara monitors while most of the Santa Barbara County emissions used by Mr. Nordsieck are located closer to the monitors.

The result of his calculations is a great overestimate of the O_3 impact of Sale 48. Thus, this specific application of EKMA to Sale 48 is not appropriate. The Nordsieck analysis also ignores any transport of emissions from the Los Angeles area into the Santa Barbara area which may have a significant effect on peak ozone concentrations.

A discussion of the effect Sale 48 emissions may have on Attainment Plans has been added to the Final ES. The analysis presented by Mr. Nordsieck is representative of the potential effect that Sale 48 emissions could have on Attainment Plans if the air quality impact of Sale 48 were to be determined through inappropriate use

of planning tools like EKMA. It would be more appropriate if the Attainment Plans were based on photochemical modeling tools which consider the spatial distribution of emissions and thus more accurately assess the impact from Sale 48 emissions.



Chevron U.S.A. Inc.

555 Market Street, San Francisco, CA 94105 • Phone (415) 894-2573
Mail Address: P.O. Box 3069, San Francisco, CA 94119

F.M. Smith
Manager, Environmental Programs
Environmental Affairs

November 14, 1978

Office of the Manager
Pacific Outer Continental Shelf
Office
Bureau of Land Management
7663 Federal Building
300 North Los Angeles Street
Los Angeles, CA 90012

Dear Sir:

We have reviewed the draft environmental statement for OCS Sale #48 and found it to be very thorough. However, we do have the following specific comments on Volume 2, III A, 4, Impacts Resulting from Accidents.

- [1] 1. Page 651, Paragraph 3, states that a total of 55 pollution incidents of 50 barrels or more occurred on the Gulf of Mexico OCS during 1964-1976. This disagrees with Table III.A.4.a-1, Page 652, which lists a total of 54 spills.
- [2] 2. The text and Table III.A.4.a.iii-5 on Page 665 indicate that 2.42 tanker spills would be expected from OCS-48 under the Mixed A scenario. This does not agree with the value of 2.18 shown in the fifth column of Table III.A.4.a.ii-1 on Page 655.
- [3] 3. The Load-On-Top discussion and the concern for discharging dirty ballast water (Page 659, paragraph 1 and 2) could be handled by referring to the recent enactment of the 1978 Port and Tanker Safety Act (PL 95-474). Under this Act, all crude carriers transferring oil from production sites to shore are required to have clean or segregated ballast.
- [4] 4. Page 659, Paragraph 3, does not define the worldwide tanker spill data base used in establishing the quantity 3.9 spills per billion barrels of cargo handled (Page 663, Paragraph 1). What period of time was included in the data base? Did the data base include all spills on the high seas, or was it restricted to spills within some appropriate distance of land?
- [5] 5. It should be pointed out that Tables III.A.4.iii-3 (Page 663), -4 (Page 664) and -5 (Page 665) are for the 22-year period, 1979-2000.

- [6] 6. It appears to be unreasonably pessimistic to consider oil spill transport for as long as 60 days on the ocean surface in the Southern California Bight (Page 664).
- [7] 7. Six pipeline-related spills greater than 1000 barrels each during production of 3.7 billion barrels of oil and condensate on the Gulf of Mexico OCS (1964-1976) gives a value of 1.6 spills per billion barrels handled. This does not agree with the value of 2.3 given in Table III.A.4.a.ii-1 (page 655) and on page 666, Paragraph 3.
- [8] 8. It should be pointed out that Tables III.A.4.a.iv-1 (Page 667) and -2 (Page 668) are for the 22-year period, 1979-2000.
- [9] 9. It appears that the tables on Pages 731-743 report the conditional probabilities (given that a spill has occurred) and not the absolute probabilities of spills impacting shorelines and offshore resource areas. This should be clearly stated to avoid any misunderstanding.

Please let me know if you wish to discuss any of the above suggestions in more detail.

Sincerely,

Forrest Smith

Responses To:

CHEVRON U.S.A. Inc.

- [1] Correction made.
- [2] The higher value of 2.42 tanker spills shown in Table III.A.4.a.iii-5 of the ES reflects spills in cumulative tanker legs (routes) outside the immediate sale area. Table III.A.4.a.ii-1 is specific to exact geographical areas.
- [3] Comments were incorporated.
- [4] The tanker spill data base involved world statistics for the years 1969-75 (spills over 1,000 barrels) and U.S. Coast Guard data for the years 1971-72 (spills under 1,000 barrels) as discussed on pages 8 and 9 of POCS Reference Paper No. VI. It included all spills both on the high seas and nearshore.
- [5] Comments were incorporated.
- [6] It is recognized that a 60 day life for an oil spill is pessimistic and improbable. However, an arbitrary cut-off had to be selected and this figure has been used during all applications of this model.
- [7] The 2.3 pipeline related spills per billion barrels of oil handled is based on 11 spills occurring while producing 4,780,000,000 barrels of oil between 1964 and 1975 (Stewart, R.J., 1975, Oil Spillage Associated with the Development of Offshore Petroleum Resources, in Report to Organization for Economic Cooperation and Development).
- [8] Comments were incorporated.
- [9] Comments were incorporated.



DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20350

14 NOV 1978

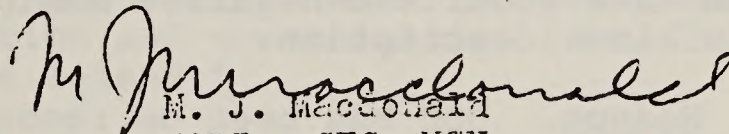
U.S. Department of Interior
Bureau of Land Management
Mail Stop 732
Washington, D.C. 20240

Dear Sir,

The Department of the Navy has been requested to respond for the Department of Defense to the Department of Interior's (Bureau of Land Management) request for comments on the Draft Environmental Impact Statement (DEIS) for the proposed OCS Lease Sale No. 48.

The statement has been reviewed and is generally concurred in except as noted in the attached enclosure.

Sincerely,


M. J. Macdonald
CAPT., CEC, USN

Director of Installations and Facilities
Office of the ASSTSECNAV (M, R&L)

Copy to:

Deputy Assistant Secretary of Defense (Energy, Environment and Safety)

Bureau of Land Management (Code 772), Department of Interior

U.S. Department of Interior, Bureau of Land Management
Pacific OCS Office, Los Angeles, CA

DRAFT ENVIRONMENTAL IMPACT STATEMENT, OUTER CONTINENTAL
SHELF LEASE SALE NO. 48, DEPARTMENT OF THE NAVY COMMENTS
CONCERNING

- [1] 1. Page 4, paragraph 5:

Comments. Delete assumption that oil and gas production from the Tanner-Cortes area will be piped ashore to the Ventura area.

Reason. Construction of a pipeline from the Tanner-Cortes area to Ventura transits the Pacific Missile Range and would result in an adverse impact to the Pacific Missile Test Center's operational commitment over an extended period of time. Additionally, the construction of such a pipeline would threaten undersea instrumentation installations vital to national security. It is noted that Department of Defense was not given opportunity to comment on this assumption.

- [2] 2. Page 14, paragraph 3.a - Nominations and Past Leasing History

Comments. Add Department of Defense to agencies which have submitted negative nominations which were specific as to block description.

Reason. DOD has been on record with BLM (Washington) since December 1976 regarding the withdrawal of fifteen specific tracts from the proposed lease sale.

- [3] 3. Page 16, Table I.B.3.a-1

Comments. Add DOD objections to Table and to list of activities voicing objections.

Reason. Same as Comment No. 2

- [4] 4. Page 21, paragraph 1 - Department of Defense Potential Use Conflicts

Comments. Add Santa Barbara Island to list of areas the Navy has expressed concern (first sentence).

Reason. Tract No. 119 lies within the Pacific Missile Range and has been requested to be deleted from the lease sale.

- [5] 5. Page 302, paragraph 2 - San Miguel Island

Comments. Revise first sentence to read "...is under the control and jurisdiction of the U.S. Navy, but, through agreement with the Department of Interior, is administered by the National Park Service."

Reason. Accuracy

- [6] 6. Page 367, paragraph 5

Comments. Revise first sentence to read "...35,000 square miles" vice 29,000 square miles.

Reason. Accuracy.

- [7] 7. Page 384, paragraph 2 - Federal Parks

Comment. Delete San Miguel Island from first sentence.

Reason. San Miguel Island is not part of the Channel Islands National Monument.

- [8] 8. Page 385, paragraph 1 - San Miguel Island

Comments. Revise first sentence to read "...is under the control and jurisdiction of the U.S. Navy, but is administered by the Department of Interior through the National Park Service."

Reason. Accuracy.

- [9] 9. Page 385, paragraph 3 - Santa Cruz

Comments. Add: "The Pacific Missile Test Center maintains instrumentation and communication installations on leased areas of the island."

Reason. Accuracy.

- [10] 10. Page 641, paragraph 2, second sub-paragraph

Comments. On line 13, change to read "...assumed three pipelines..." vice four pipelines. On line 15, delete "... and Tanner-Cortes."

Reason. Same as Comment No. 1.

- [11] 11. Page 645, Figure III.A.3-1 - Possible Pipeline System

Comment. Delete Tanner-Cortes to Santa Rosa portion of proposed pipeline.

Reason. Same as Comment No. 1.

- [12] 12. Page 969, paragraph 4.a - Camp Pendleton Amphibious Vehicle Training Area (CPAVA)

Comments. Delete second and third sentences which refer to expenditure of aircraft ordnance.

Reason. No ordnance is expended in CPAVA.

13. Page 969, paragraph 4.c - Encinitas Naval Electronic
[13] Test Area (ENETA)

Comments. Line 3 - omit (LBETA). Line 13 - revise sentence to read "The Navy has agreed to joint usage in the case of Tract 151. Further, the Navy has agreed to the leasing of Tracts 152 and 153, if drilling activities are restricted to the western one-third of the tracts."

Reason. In accordance with agreement reached between BLM and the Navy in January 1977.

[14] 14. Page 970, paragraph 4.g - Fleet Training Area (FLETA)

Comments. Line 9 - revise sentence to read: "The FAA provides radar separation to commercial carriers to eliminate any possible accidents."

Reason. FAA presently maintains 50 miles lateral separation in the trans oceanic traffic scheme, but "radar separation" is provided to about 75 miles west of the outer Warning Area boundaries.

[15] 15. Page 971, paragraph 4.j - Combat Systems Evaluation
Range (CSR)/Shipboard Electronics Systems Evaluation Facility
(SESEF)

Comments. Add "The Navy has agreed to joint usage of this area."

Reason. This area is within the agreed BLM/DOD joint usage area.

[16] 16.. Page 971, last paragraph

Comments. Revise paragraph to read: "The Department of Defense has recommended that 15 tracts (119, 203-205 and 207-217) not be considered for leasing in Sale No. 48. These tracts lie within the Pacific Missile Range (Tract 119) or within those operating areas experiencing the highest usage by fleet units, including carrier operations (Tracts 203-205 and 207-217). Operational and safety considerations militate against joint usage in these areas."

Reason. In the January 1977 negotiations between BLM and DOD on OCS Lease Sale No. 48, these 15 tracts were not within the agreed upon joint use area. Because of the safety considerations and the high tempo of operations within the PMR, FLETA and CBCOA, DOD has specifically requested that these tracts be excluded from OCS Lease Sale No. 48. Additionally, it is to be noted that only Tract 208 (Bishops Rock), which lies in the middle of the fleet operating area, is unusable for surface or subsurface operations.

- [17] 17. Page 1223, paragraph IV.A - Regulation Enforcement
Comments. Expand to include Department of Defense.
Reason. Stipulation 1 (page 1239) requires lessee to coordinate with the appropriate onshore military installation.
- [18] 18. Page 1239, paragraph B, Stipulation No. 1
Comments. Line 3 - delete TCB 167-217.
Reason. Tracts in the Tanner-Cortes Bank area are within the Fleet Area Control and Surveillance Facility, San Diego (FACSFAC) area of responsibility. TCB 167-217 should be included in subparagraph (d).
- [19] 19. Page 1240, paragraph (c)
Comments. Line 4 - revise to read "...i.e., the Western Area Frequency Coordinator located at..." vice "the Space and Missile Test Center (SAMTEC), and"
Reason. Accuracy.
- [20] 20. Page 1240, paragraph (d)
Comments. Revise first sentence to read "Additionally, sections (a) and (c) of this stipulation shall apply to Tract numbers DP-SD, 141-166 and TCB 167-217."
Reason. Tracts in DP-SD lie within fleet operating areas SPCOA, OPAAA, CPAVA, ENETA and FLETA (COLD). Also, the Tanner-Cortes Bank lies within the FACSFAC area of responsibility (see Comment No. 18).
- [21] 21. Page 1240, Stipulation No. 2
Comments. Line 4 - expand to include SP-DP 141-166.
Reason. Same as Comment No. 20.
- [22] 22. Page 1252, paragraph D.1 - Measures Related to Military Operations
Comments. Line 17 - revise to read "...extends the coordination of operations and the control of electromagnetic..."
Reason. Consistency with recommended revision to Stipulation No. 1 (d). Provides for joint usage of lease areas.

- [23] 23. Page 1372, paragraph 8 - Pipeline from Tanner-Cortes Ridge...

Comments. Delete entire paragraph.

Reason. Same as Comment No. 1.

- [24] 24. Appendix A, page A-3 - Tentative Tract List

Comments. Remove following tracts: SBI-119, TCB 203, 207-217.

Reason. These tracts are not within the BLM-DOD agreed joint usage area.

- [25] 25. Appendix F, page F-35 - Impact Matrix

Comments. Change the impact rating in the Military Use column to a value of 10 (maximum) in the case of the following tracts: TCB 203-205, 207, 208, and 210.

Reason. These tracts are within the highest used fleet operating area and have been formally requested to be deleted from OCS Sale No. 48.

Responses To:

Department of the Navy

- [1] We recognize that this remains a potential unresolved planning conflict. A pipeline to shore is the most feasible way of transferring oil providing sufficient quantities are located to justify the expense. This ES assumes at least as much oil will be produced as is projected. Therefore a pipeline appears likely. However, it will require a separate study at a later date to validate feasibility and location. At such time, all problems and trade-offs will be assessed. We understand that this potential pipeline is projected in areas essential to Navy operations and will give serious and careful analysis to the conflict.
- [2-9] Corrections made as suggested.
- [10-11] Comment not incorporated as pipeline remains an alternative method of transferring oil to shore at this time until further analysis is made.
- [12-15] Corrections made.
- [16] The Department of the Navy's concern has been noted as indicated in the March 17, 1978 letter from the Assistant Secretary for Land & Water Resources to the Deputy Assistant Secretary of Defense.
- [17] Correction made.
- [18] TCB 167-217 have been added to sub-paragraph (d) as requested.
- [19-22] Corrections made.
- [23] Refer to response [10-11].
- [24] Although these (15) tracts were agreed to by Department of Defense for joint use at the time of Tract Selection, we recognize there is still some concern on Navy's part. We remain confident that resolution of the problem can be obtained by the time of any proposed Notice of Sale, tentatively estimated for March 1979.
- [25] Changes have been made as requested.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

WASHINGTON, D.C. 20240

In Reply Refer To:
FWS/OBS

137 14 1979

MEMORANDUM

TO: Director, Bureau of Land Management
Attn: 732

FROM: Deputy Director, Fish and Wildlife Service

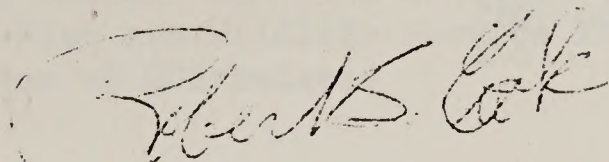
SUBJECT: Draft Environmental Statement for Proposed 1979 OCS Lease
Sale #48, Offshore Southern California

We have reviewed the subject statement and offer the following comments:

[1] The subject impact statement is generally adequate in its description of the activities associated with the proposed lease sale. We remain concerned over the potential for long-term impacts associated with oil and gas development activities offshore Southern California. Section II. 1., page 619, pertains to our comment No. 3 in our January 31, 1978 memorandum on the preliminary draft EIS (copy attached). This section has been rewritten and we agree that meaningful predictions may be difficult. Unfortunately, the fact remains that the proposed action will make some contribution to the general deterioration of the environment. Although individual contributions may be small, the cumulative impacts of future development in coastal areas will probably be significant. We, therefore, urge that the Bureau of Land Management implement plans for an aggressive environmental studies program which addresses such information gaps as the disposition and effects of materials released during offshore exploration and development operations; the status and ecology of sensitive habitats and species; and the synthesis of important resource information in a form which makes it available and understandable to various industry and local, State and Federal decisionmakers. These officials can then anticipate and minimize potential adverse effects of activities related to the proposed lease sale.

[2] We also remain concerned over the potential for direct and indirect impact from oil and gas activities to the significant biological populations supported by the Channel Islands. We feel these islands warrant additional protective measures.

We appreciate the opportunity to review this material and hope our comments will aid in the preparation of the Final Statement.



Attachment

500 NE MULTNOMAH STREET SUITE 1692
PORTLAND OREGON 97232

Reference: OBS
OCS

January 31, 1978

To: Manager, Pacific OCS Office, Bureau of Land Management,
Los Angeles, California

From: ^{Acting} Regional Director, FWS, Portland, Oregon

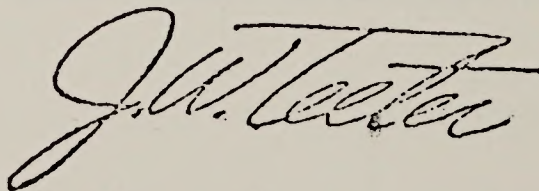
Subject: Review of Preliminary Draft Environmental Statement, OCS
Lease Sale No. 48

We have reviewed Volumes I, II, and III of the subject Environmental Statement and have the following comments.

1. Table II.E. 6-2, should have population numbers associated with each site and species. This will show the significance of each area as a breeding-pupping or haulout area.
2. The statement is weighed heavily to plankton, benthos, and nekton, with brief sections on birds and mammals. The BIN "Marine Mammal and Seabird Study" would contribute to these sections.
3. Section I, p. 1489 gives very brief speculation on future needs and impacts. It does not fully address the conditions that would prevail in the absence of Lease Sale No. 48.
4. In general, the biological component is well-addressed in the environmental statement.

Thank you for the opportunity to review this material. We look forward to the opportunity to comment upon additional volumes as they become available.

cc: ~~Ray Perez, OBS, Wash., DC~~
Al Sherk, OBS, Wash., DC
Rolf Mall, CDFG Long Beach
Jim Slawson, NMFS Long Beach
AM Sacramento
ES Laguna Niguel



U.S. Department of the Interior
RECEIVED

1700

FEB 2 1978

Responses To:

United States Department of the Interior
Fish and Wildlife Service

- [1] Your recommendation for the implementation of an aggressive environmental studies program is noted. BLM will continue its close cooperation with the U.S. Fish and Wildlife Service in the development and implementation of OCS-related environmental studies.
- [2] The State jurisdiction for the Channel Islands extends from the shore of the islands to 3 miles offshore. No OCS drilling is allowed within the States territory. In addition to this de facto buffer strip, this office has discussed as an alternative an additional three-quarter mile buffer off areas of great biological significance. Also, the State of California and NOAA have recommended an additional buffer off selected island locations. These options will be presented in the SID for possible Secretarial approval.

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT

1500 East Imperial Highway, El Segundo, California 90245

(213) 322-3080

October 2, 1978

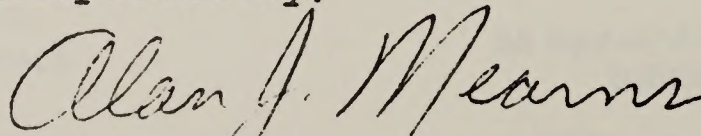
Dr. Donald F. Keene
Bureau of Land Management
Pacific OCS Office
Room 7127 - Federal Bldg.
300 N. Los Angeles Street
Los Angeles, CA 90012

Dear Don,

I wish to draw your attention to an important error in Vol. I of the Draft Environmental Statement for OCS lease sale 148. The second and third paragraphs on page 248 refer to tumor diseases in nearshore fishes and incorrectly imply that these diseases are associated with urbanization and industrialization and that they are caused by man. I think the problem stems from the writer's confusion about several kinds of diseases and lack of using the most up to date data to describe the situation. Indeed as stated in the second sentence of the third paragraph, disease incidence in the Southern California Bight is highest off Palos Verdes and decreases to the north and south. However, it is vital to point out that this is due mainly to a non-infectious fin erosion disease in bottom fish, not to tumors. Moreover, fin erosion disease is definitely related to sediments contaminated by chlorinated hydrocarbons. Tumors, on the other hand, occur throughout the Bight with no apparent point sources.

These may appear to be small points, but the health of marine life is something the public takes very seriously and what data exists should be carefully presented. In any case, I thought you should be informed of this point. I will be glad to provide more information to those concerned about this point.

Respectfully,



Alan J. Mearns, Ph.D.
Senior Environmental
Specialist

AM:kc

1702

Response To:

Southern California Coastal Water Research Project

The EIS has been modified to reflect the comment.



UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230
(202) 377-3000 4335

November 16, 1978

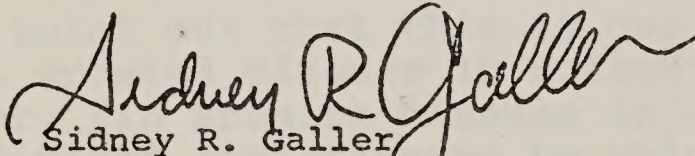
Manager, Pacific OCS Office
Bureau of Land Management
7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

This is in reference to your draft environmental impact statement entitled "Proposed 1979 Outer Continental Shelf Oil and Gas Lease Sale Offshore Southern California - OCS #48." The enclosed comments from the National Oceanic and Atmospheric Administration and the Maritime Administration are forwarded for your consideration.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving twelve (12) copies of the final statement.

Sincerely,


Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Enclosures from:

Mr. Alexander C. Landsburg
Maritime Administration

Mr. Douglas LeComte
Mr. Gordon G. Lill
Mr. Gerald V. Howard
Mr. Robert W. Knecht
NOAA

cc: Director (732), Bureau of Land Management
Washington, D.C. 20240



UNITED STATES DEPARTMENT OF COMMERCE
Maritime Administration
Washington, D.C. 20230

October 24, 1978

MEMORANDUM FOR: Dr. Sidney R. Galler
Deputy Assistant Secretary for Environmental
Affairs
Department of Commerce

Subject: Department of Interior DEIS - Proposed 1979 Outer
Continental Shelf Oil and Gas Lease Sale No. 48 for
Offshore Southern California (CN 7809.04)

In accordance with your request of September 6, 1978, the Maritime Administration has reviewed the subject draft environmental impact statement and submits the following comments for consideration.

[1] 1. SOHIO Pipeline Project, page 44

Discussion:

In the discussion on the SOHIO pipeline project it is stated that the transportation system would begin at a proposed new terminal at the Port of Valdez, Alaska.

Comment:

The discussion should note that tankers have been loading crude oil from the Port of Valdez for over a year.

[2] 2. Shipyard Potential for Construction, pg 542

Discussion:

The discussion on non-California firms which have been active in offshore work that could be called on to produce rigs or components for use on the west coast, Avondale-Houston has been identified.

Comment:

It should be noted that the Avondale shipyard is located in New Orleans, Louisiana.

- [3] 3. Water Pollution Sources, Southern California, page 591

Discussion:

It is stated the oil spills occur most frequently during fuel oil transfer operations at dock facilities, and that the most damaging incident occurred in January, 1971, when two tankers collided in the Bay and released 840,000 gallons of fuel.

Comments:

The release of 840,000 gallons of oil in the collision of two tankers in San Francisco Bay is not related to operational pollution occurring during the transfer of fuel oil.

- [4] 4. Tanker Accidents and Operations, page 659

Discussion:

This section contains a discussion on the Load-on-Top (LOT) system and states that because distances within the proposed sale are insufficient to allow effective operation of the LOT system, separation of oil from bilge water would be difficult.

Comment:

The primary purpose of the LOT system is to separate oil from ballast water. Bilge water is very rarely, if ever, added to ballast water during the LOT process.

- [5] 5. Tanker Accidents and Operations, page 659

Discussion:

It is stated in the draft that 84 percent of the worldwide spillage of oil is attributed to washing tanks without using the Load-on-Top procedures.

Comment:

This 84 percent should be attributed to not only tank washing but other routine operational discharges such as ballasting and bilge discharges.


[6] 6. Oil Imports - Environmental Impact, page 1392

Discussion:

In the discussion of the Environmental impact of oil imports it is stated that intentional discharges would result largely from tank cleaning operations.

Comment:

This section should be changed to indicate that the uncontrolled deballasting of tankers is the primary cause of intentional discharges.


ALEXANDER C. LANDSBURG
Chief, Environmental Activities Group
Office of Shipbuilding Costs



OCT 25 1978

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
ENVIRONMENTAL DATA SERVICE
Washington, D.C. 20235

October 23, 1978

TO: A/PP - William Aron

FROM: OA/Dx61 - Douglas LeComte *Douglas LeComte*

SUBJECT: DEIS 7809.04 - OCS Sale No. 48, CA

Specific Comments

- [7] Vol. 1, Page 68, 4th paragraph: The environmental statement says that the last damaging tropical cyclone to affect coastal southern California was in 1939. However, tropical storms caused damage in southern California in 1976, 1977, and 1978. The D.E.S. should update the tropical cyclone climatology discussion by making reference to these recent storms.
- [8] Page 85, 6th paragraph: The discussion of swells from tropical hurricanes should be updated to include the recent storms of 1976, 1977, and 1978.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

OA/C52x6

OCT 24 1978

TO: PP - William Aron

FROM: OA/Cx1 - *Gordon G. Lill*
Gordon G. Lill

SUBJECT: DEIS #7809.04 - OCS Sale No. 48, Southern California

The subject statement has been reviewed within the areas of NOS responsibility and expertise, and in terms of the impact of the proposed action on NOS activities and projects.

The following comment is offered for your consideration.

- [9] NOS wishes to point out the possible environmental conflict of the following proposed lease tract numbers with the Scripps Shoreline Reserve, Scripps Submerged Land Area, La Jolla Ecological Reserve, and the San Diego-La Jolla Underwater Park:

17 N, 24 W
16 N, 24 W; 16 N, 23 W
15 N, 25 W
14 N, 25 W; 14 N, 24 W
13 N, 25 W; 13 N, 24 W
12 N, 25 W; 12 N, 24 W; 12 N, 23 W
11 N, 23 W; 11 N, 22 W

NOS encourages the Bureau of Land Management to contact the Scripps Institution of Oceanography, University of California, La Jolla, California, directly, to ascertain if conflicts do exist.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

To: F7, Mike Moreford
 FROM: FSW33, Jim Lawson

Date : October 26, 1978

FSW33/JJS/JHL

To : EC, William Aron

Robert L. Schuler OCT 30 1978

Thru F7, Kenneth R. Roberts

From J. Mary Smith
 FSW, Gerald V. Howard

Subject: Comments on Draft Environmental Impact Statement -
 OCS Sale No. 48 - Proposed 1979 Outer Continental
 Shelf Oil and Gas Lease Sale Offshore Southern
 California - BLM - DEIS #7809.04

The subject draft environmental impact statement that accompanied your memorandum of September 11, 1978 has been received by the National Marine Fisheries Service for review and comment.

The statement has been reviewed and the following comments are offered for your consideration.

General Comments

The subject DEIS is quite thorough in its description of the marine environment which will be affected by Lease Sale 48 and in general is quite accurate in assessing the expected impacts of the Sale on that environment. The DEIS reflects the potentially severe impacts oil related activities in the vicinity of the Channel Islands could have on marine mammal populations.

After having reviewed these stated impacts, and compared the maps of proposed Sale tracts versus the Channel Island pinnipe breeding areas presented on Visual No. 8, we have some significant concerns regarding several of the tracts for lease in the Channel area.

In the Final EIS issued for Lease Sale 35 the Bureau of Land Management (BLM) also recognized that drilling operations adjacent to pinniped rookeries were a potential danger to those populations, and the following alternative was discussed, though not adopted:

1710

FILE COPY

CODE	SURNAME	DATE	CODE	SURNAME	DATE
FSW3	J. Mary Smith	10/26/78			

"No offshore structure, either temporary or permanent, will be placed closer than six (6) miles from the shorelines (mean high tide level) of San Miguel and Santa-Barbara Islands in order to provide a minimum buffer zone for pinniped and seabird rookeries located on these islands. This restriction includes exploratory drilling structures."

Further discussion of that alternative indicated that a six-mile buffer zone would also allow more time to set up containment equipment in the event of an oil spill and would prevent sport fishermen from being attracted to any structures which could have been located nearer the island in the absence of such a buffer. Because of considerations specific to Sale 35, this alternative became unnecessary.

- [10] However, Lease Sale 48 again poses these same dangers to marine mammals on the islands. Therefore, we feel that a buffer would be appropriate in this instance and recommend that the former BLM Lease Sale 35 alternative of a buffer zone sufficient to protect pinniped resources be applied on the following tracts in Sale 48:

Tracts 88 through 103, inclusive
Tracts 117, 118, 119

In our agency reviews of future Lease Sale 53 off northern and central California we recommended a ten-mile buffer. However, this figure could be negotiated for Sale 48 if resource protection can be assured through less restrictive measures.

Specific Comments

Volume I

II. Description of the Environment

F. Important Marine Associated Habitats

5. Unique Environments

Page 330, Biologically Sensitive Areas, Mexico

- [11] The Guadalupe fur seal is listed as rare by the state of California. It has not been listed as either threatened or endangered by the Federal government. Therefore, the reference to endangered should be struck.

III. Environmental Impact of the Proposed Sale

A. Basic Assumptions Regarding Causes of Possible Impact Resulting from the Proposed Sale

4. Impacts Resulting from Accidents

b. Sale No. 48 Oil Spill Trajectories

Page 725, iii Oil Spill Cleanup Capability

- [12] The statements are made that "...wherever a spill were to occur in California waters, oil spill equipment would be deployed between the spill and any shoreline before the spill could reach shore" and "Considering all the factors...less than 25 percent of any spill could reach shore."

These claims seem somewhat optimistic in light of the fact that some potential sites for oil operations may be a number of miles from the mainland and quite close to the Channel Islands. Perhaps some of the instances of past performances alluded to in this section could be included in the FEIS.

- [13] Pages 730-743, iv. Oil Spill Trajectory Results

It would be helpful if further text could be provided as a preface to the Tables occurring on page 730-743. As they stand, they are difficult to interpret because there are no specific units provided with the numbers presented.

C. Impacts of the Proposal Offshore

- [14] Throughout this entire section the seriousness and inevitability of oil spills is discussed, yet nowhere in the DEIS are adequate compensatory measures proposed. A suggestion has been made by the California Department of Fish and Game in their letter of October 11, 1978 to BLM's Pacific OCS Office that "One compensation measure not considered is mainland habitat acquisition and protection" to partially offset expected losses.

The idea has merit and should receive thorough discussion in the FEIS.

c. Impact on Nekton

- [15] Page 862, Santa Barbara Area Impacts

It is implied that modern pre-exploratory work utilizes non-explosive energy sources for seismic surveys. Our agency

contact with the U.S. Geological Survey indicates in certain instances seismic testing will still be done with T.N.T. This apparent contradiction should be addressed.

e. Impacts on Marine Mammals

i. Impacts on Marine Mammals of the Southern California Bight

[16] Page 900, Table III.c.1.a-2.

"Marine Mammal species of the Southern California Bight Most Vulnerable to Impacts from Offshore Petroleum Development"

The Pacific right whale should be added to this Table. Due to the small size of this population any impact which might occur could be severe.

[17] Page 900, Santa Barbara Area Impacts.

The Northern sea lion (Eumatopias jubatus) and the Guadalupe fur seal (Arctocephalus townsendi) should be added to this list of marine mammals which may be impacted in the Santa Barbara Channel area.

There is a small colony of about 20 Northern sea lions on Point Bennett, San Miguel Island which produces several pups each year. An oil spill impacting Point Bennett during the breeding season could eliminate the Northern sea lions from the southern extent of its range.

Adult and immature male Guadalupe fur seals have been sighted on San Miguel every year since 1968. Although there is no breeding activity on San Miguel the presence of these animals could represent an expansion of the fur seal population into its former range. An oil spill in the Santa Barbara Channel could slow down or stop this expansion.

Page 906, f. Threatened/Endangered species.

[18]

The North Pacific population of whales is effectively isolated from the Southern Pacific populations geographically by warm equatorial waters and temporarily by the reversal of the seasons in each hemisphere. If some catastrophic event were to occur which would eliminate one species of whale from the North Pacific, one could not assume that the North Pacific stock would be repopulated by immigrants from the South Pacific.

Because of this we feel the impacts of this Lease Sale should be evaluated on the basis of its impacts on the North Pacific populations and not on the basis of its impacts on the world-wide population.

bc: WSL, ETN, (Admin) Chron

1713



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, Maryland 20852

NOV 6 1978

DATE: NOV 3 1978

TO: PP - William Aron

FROM: CZ - Robert W. Knecht *for*

SUBJECT: Review of Draft Environmental Statement for Proposed OCS
Oil and Gas Lease Sale #48 (DOI/BLM)--INFORMATION MEMORANDUM

We have reviewed the subject document and have the following comments.

[19] NOAA is presently considering a Channel Islands Marine Sanctuary comprising waters around each of five islands-San Miguel, Santa Rosa, Santa Cruz, Anacapa and Santa Barbara. Letters to the California Coastal Commission, the San Diego Comprehensive Planning Organization, and Santa Barbara County describing the status of the marine sanctuary program offshore of California are enclosed.

Significant public effort has already been directed toward protection of this unique and sensitive ecological area. The National Park Service (NPS) administers Anacapa and Santa Barbara Islands as a part of the Channel Islands National Monument. The same agency manages San Miguel Island which is administered by the Navy and the Nature Conservancy owns a portion of Santa Cruz Island. In addition, the State of California has established Oil and Gas Sanctuaries around the Islands to protect the sensitive areas.

The uniqueness and vulnerability of the natural resources in the area of the Channel Islands are widely recognized. The environmental statements for Lease Sale #35 and #48 emphasize these points as have other Federal and State agencies as well as private organizations.

It is also recognized that existing and proposed activities in the Channel, other than oil and gas development from Sale #48 are numerous and that the natural resources will be subjected to continuous threats. Cumulative impacts on these vulnerable resources will likely be significant and could result in depression of population levels and possibly in species elimination from the Southern California Bight.

Of the 217 tracts considered for leasing in the proposed Sale #48, 21 are within the proposed marine sanctuary area. We therefore recommend the withdrawal from the lease sale offering, of tracts 098-108, 088-097, 117-119 to provide a development free zone, at the present time, for the protection of the natural resources of the Islands. This

will allow opportunity for full consideration of the marine sanctuary option. This is not an irreversible commitment of energy resources yet it does provide an additional measure of protection to unique natural resources that could otherwise be irretrievably lost.

This protective zone would accomplish the following:

- o Provide a means of decreasing the degradation risks to the near and onshore resources;
- o Enhance protection of the onshore Channel Islands National Monument in Santa Barbara, Anacapa and San Miguel. As it is, their management authority does not extend offshore and nearshore impacts will affect the character of the islands themselves;
- o Provide similar protection for the privately owned islands of Santa Rosa and Santa Cruz;
- o Enhance protection of larger portions of a population in the area. Few species are confined to any one island and by affording similar protection to all five we increase our ability to safeguard population levels;
- o Safeguard in so far as possible more than one aspect of species biology. For example, around the Monument a species' onshore habitat, and offshore foraging areas would both be better protected, as well as the other organisms essential to these species survival such as producers, prey etc;
- o Reduce likelihood of disturbance of normal animal behavior patterns from human activity;
- o Allow additional response time, in the event of a spill, for deployment of containment and clean-up equipment;
- o Enhance the utility of State Oil and Gas Sanctuaries which were created around the islands to protect sensitive areas and avoid "forced" drainage sales;
- o Further cooperative relations with California State agencies that have been actively encouraging protection of these waters.

In view of the fact that leasing, exploration and production will likely increase in the Santa Barbara area along with attendant chronic spills, selection of this alternative is a minimal conservation measure.

You should delete the last sentence on page 34, Volume 1, which states:

"The consistency portion of the CCZMP is currently being contested by the Western Oil and Gas Association in Federal Court."

for the following reason. The "consistency portion" of the CCZMP was never at issue, but rather the technique or authority by which the Western Oil and Gas Association believed they would be adversely affected by those aspects of the Program which were in dispute.

The Western Oil and Gas Association, the American Petroleum Institute and others joined in suit against the Office of Coastal Zone Management in September, 1977, seeking to prevent approval of the Program as contrary to their interests. The approval of the CCZMP was challenged on substantive and procedural grounds. The Court ordered that approval be granted the CCZMP, but stayed (until the case was decided) the application of consistency procedures whereby Federal permits would be required to be consistent with the State Program. On August 31, 1978, the Court affirmed Federal approval of the Program, rejecting the plaintiffs arguments on each count. At the date of this writing, the plaintiffs have indicated their intention to appeal the decision to a higher court.

Enclosures

OCT 13 1978

Mr. Michael Fischer
Executive Director
California Coastal Commission
631 Howard Street
San Francisco, California 94105

Dear Michael,

As you know, the National Oceanic and Atmospheric Administration (NOAA) has been working closely with the California Coastal Commission to coordinate state and federal activities for the designation of marine sanctuaries offshore of California for the past year. Over the past two months, we have been reviewing with you and others the status of our efforts nationwide and in California and how we should proceed. This letter outlines changes in NOAA procedures for the marine sanctuary program and the role we hope the Commission will play in continuing evaluation of California marine sanctuary sites.

Following President Carter's Environmental Message of May 23, 1977, NOAA solicited recommendations for sites as possible marine sanctuaries from public and private sources. Several recommendations of California sites were forwarded by Commission staff, representing the Commission as the lead state agency in relation to the marine sanctuary program, and other recommendations were received from state and federal agencies and local authorities. After discussion with the Commission staff, NOAA held public workshops in April, 1978, to provide program information and solicit initial public reaction to possible sanctuaries at San Diego, the Tanner Cortes Banks, the Santa Barbara Channel, Monterey Bay and Point Reyes/Farallon Islands.

Since these workshops, NOAA has been gathering information on these possible sites, analyzing the data and preparing to print and distribute White Papers this fall. These documents were intended to stimulate further discussion and public comment on the desirability of marine sanctuaries at these various sites. The Commission's evaluation of the White Papers and public comment on them were to be primary determinants in the subsequent decision to proceed to publish a Draft Environmental Statement (DES) on any particular site.

NOAA's experience with the White Paper on the Flower Garden Banks offshore Louisiana and Texas has convinced us that a different approach would be more desirable from every perspective. White Papers cannot satisfy the public unless they include a level of detail and analysis equivalent to that of a DES. The White Paper mechanism has not proven a useful vehicle for initial consultation with federal or state agencies

either, since they are now seeking consultation before the White Paper is released. Considering the time and resources that must be invested in preparation of the document, the first formal document should be a DES, accompanied by a draft designation and proposed regulations. This detailed study would be subject to public comment and a Public Hearing in the affected area, and all comments would be carefully reviewed before any decision is made to designate a sanctuary. The National Environmental Policy Act provides that the DES is a document to aid decision makers, not an after-the-fact record, and we intend to have it serve that function for NOAA.

The decision to proceed directly to the preparation of DESs makes it impossible for NOAA to proceed with all five California sites simultaneously. Moreover, our internal evaluation has led us to the conclusion that certain areas are inappropriate for action at this time, for various reasons. The status of each of the five California sites is as follows:

1. San Diego. The waters offshore San Diego will not be pursued because Congress has indicated in pending reauthorization legislation that it does not intend sanctuaries to protect primarily esthetic and recreational values. The San Diego nomination is based predominantly on such values. The enclosed letter to the Comprehensive Planning Organization of San Diego, which nominated the site, explains this conclusion in greater detail.
2. Tanner and Cortes Banks. This area has been dropped as an active candidate site. The review of the data on this area has revealed that no geographic focus exists where the protection of the coral resources should take priority over other activities. Individual corals can fully be protected through Bureau of Land Management (BLM) lease stipulations on the Banks, the coral permits FLM must issue for harvest, or a Fishery Management Plan for coral, should the Pacific Fishery Management Council choose to prepare one.
3. Santa Barbara Channel. The nomination of the entire Santa Barbara Channel for marine sanctuary status will not be pursued. The basis for the nomination of the main Channel is almost entirely a need for establishment of priorities among conflicting human uses of the area, such as vessel traffic and oil and gas development. The enclosed letter to Santa Barbara County sets out in detail NOAA's basis for concluding that such a nomination is outside the scope of the marine sanctuary program.

NOAA intends to continue to evaluate the desirability of establishing one or more sanctuaries around the Channel Islands to protect those vital ecosystems and to gather information necessary to develop a DES on this site.

4. Monterey Bay. The biological and natural resources of the Monterey Bay and adjacent waters make the area appropriate for further active evaluation for sanctuary status. NOAA will gather information necessary to develop a DES on this site.

5. Point Reyes/Farallon Islands. The biological and natural resources of the waters surrounding the Point Reyes National Seashore and the Farallon Islands render this area appropriate for further active evaluation for sanctuary status. NOAA will gather information necessary to develop a DES on this site.

NOAA's decision not to publish White Papers on potential sanctuary sites is not intended to reduce the role of the Commission in the designation process. To facilitate its consideration of what areas should be designated, NOAA will produce summary descriptions of the three sites still under active consideration, including various possible boundaries and various possible management regimes for each site. We understand that the Commission intends to hold public hearings in these areas focussing on these papers, and we encourage it to do so. Commission recommendations on the alternative sites, boundaries and regulations will be extremely useful in preparing any DES and in deciding whether to proceed toward designation of a site, either before or after a DES is released. We hope to supply these papers by the end of October, after which the Commission will be able to distribute them as it wishes. We hope that this arrangement will provide a satisfactory mechanism for the Commission to participate fully as the NOAA process continues.

We deeply appreciate the interest and effort devoted to the marine sanctuary program by the Commission and its excellent staff. Our continued efforts will result in an important and lasting contribution to the protection of some of California's valuable offshore resources. If any questions arise, please contact me or Jo Ann Chandler, Acting Director, Sanctuary Programs Office.

Sincerely,

Robert W. Knecht
Assistant Administrator

OCT 13 1978

Mr. Robert Kallman
Chairman, Board of
Supervisors
County of Santa Barbara
Santa Barbara, California

Dear Mr. Kallman:

Since April 1978, following the public workshop on the marine sanctuary program in Santa Barbara, the National Oceanic and Atmospheric Administration (NOAA) has reviewed the appropriateness of designating the Santa Barbara Channel as a marine sanctuary, pursuant to Title III of the Marine Protection Research and Sanctuaries Act of 1972 (the Act). The Santa Barbara Channel Marine Sanctuary Nomination and Management Information which you submitted to NOAA on behalf of Santa Barbara County in June, 1978, included an ocean area of over 3000 square miles offshore Santa Barbara and Ventura Counties, extending from Point Arguello in Santa Barbara County to the eastern boundary of Point Mugu State Park in Ventura County. The seaward boundary, approximately 15 miles from the main or island coastlines, included the entire Santa Barbara Channel, the Channel Islands platform, and the Santa Rosa Plateau seaward of the Islands. After careful evaluation of the objectives of the nomination and the Act, NOAA has concluded that designation of the entire Santa Barbara Channel as a marine sanctuary would be an inappropriate application of the Act. The waters near the northern Channel Islands and Santa Barbara Island remain under active consideration for marine sanctuary status.

The basis for this conclusion rests in the purpose of the Act to preserve or restore intrinsic natural values, rather than to establish priorities among actual or potential conflicting human uses. Marine sanctuary status proposed for the whole of the Santa Barbara Channel would serve the purpose of coordinating the existing regulatory authority of various Federal agencies and mediating conflicting human uses of the area. The Nomination itself states that "the primary gap in the existing regulatory regime in the nomination area is the inability of agencies with jurisdiction over resources or locations to protect them." It proposes that, in the main Channel, the marine sanctuary would serve as the mechanism to resolve conflicts among vessel traffic patterns; between OCS oil and gas development and vessel traffic; and between OCS oil and gas development and the maintenance of air quality standards.

The testimony of the Santa Barbara County witnesses at the July 24, 1978, Oversight Hearings conducted by the Oceanography Subcommittee of the House Merchant Marine and Fisheries Committee stressed that the primary function of a marine sanctuary in the Channel would be resolution of conflicts among human uses already regulated by a number of inadequately coordinated Federal agencies.

While such a coordinating role and multiple use management are undoubtedly important to the future of the Santa Barbara Channel and to wise use of ocean resources in general, Congress did not intend that designation of an area as a marine sanctuary under this Act would be focused on these objectives. Rather, sanctuaries are intended to preserve or restore "areas for their conservation, recreational, ecological or esthetic values." The recent Senate Commerce, Science, and Transportation Committee Report accompanying S.2767, reauthorizing the Act, is even clearer: "[T]he purpose of the program remains the preservation, protection and restoration of specific ecologically important marine areas.... [E]sthetic reasons alone are not sufficient for creating a sanctuary and then prohibiting or strictly controlling activities within it. Moreover, while the Committee feels there may be cases where sanctuaries should be created primarily for recreational reasons, it believes that most sanctuaries should be established for conservation or ecological purposes."

NOAA shares your concern for the actual and potential conflicts among human activities in the Channel area, which creates the potential for improper use of this vital national resource in achieving our local, State and national goals. We hope in the coming years to help the Federal government develop the kind of coordination of programs and regulations that can produce coherent results in areas like the Santa Barbara Channel, and we hope to call on you as we pursue that objective.

The waters near the northern Channel Islands and Santa Barbara Island present a quite different situation. They abound in the values identified for protection under the marine sanctuary program. Important protection for marine mammals and seabirds, including several endangered and threatened species, could be provided by sanctuary status. The transition zone ecosystems could also be preserved in these waters. Consultations with Federal, State and local groups have demonstrated the almost unanimous consensus that the marine areas around the Islands have some of the Nation's most valuable ecological and conservation values.

NOAA's efforts will therefore focus on the development of a Draft Environmental Statement (DES) on designating one or more marine sanctuaries to protect the values near the northern Channel Islands and Santa Barbara Island. The complexity of the conflicts over the uses of

the Channel area will require a very thorough analysis and documentation of the environmental and economic impacts that would result from creation of such sanctuaries. We expect that several months will be required before an adequate DES can be prepared for public review.

We appreciate your intense interest in these important matters and look forward to continuing to work with you and Santa Barbara County to achieve this objective. If you have any questions, please contact me or Jo Ann Chandler, Acting Director of the Sanctuary Programs Office.

Sincerely,

Robert W. Knecht
Assistant Administrator for
Coastal Zone Management

XXXXXXXXXXXXXXXXXXXX

Office of Coastal Zone Management
Washington, D.C. 20235

OCT 13 1978

Mr. Jack Koerper
Director
Comprehensive Planning Organization
of the San Diego Region
Suite 524 Security Pacific Plaza
1200 Third Avenue
San Diego, California 92101

Dear Mr. Koerper:

In June 1978, the Comprehensive Planning Organization of the San Diego Region (CPO) submitted to the National Oceanic and Atmospheric Administration (NOAA) a Nomination of Certain Offshore Waters of San Diego and Orange Counties As A Marine Sanctuary. This formal nomination followed an earlier public presentation to NOAA at a workshop in San Diego on the marine sanctuary program in April, 1978. The nominated area included 7,400 square miles from Point Vicente in the north to the Mexican border, and from the seaward limit of State jurisdiction to a line parallel to the coastline just seaward of San Nicholas Island. The nomination proposed prohibition of oil and gas development in a zone three to twenty miles offshore from Dana Point south to the Mexican border, suggested incorporation of State plans for State waters around the included islands, and noted need for a "moderate degree of management" in the remaining large area.

NOAA has carefully evaluated the area for possible sanctuary designation since the original discussions in terms of values of the area and the threats to them, and the functions that designation of marine sanctuary in this area could serve. This review has convinced us that further pursuit of the CPO nomination is not appropriate at this time. At the same time, NOAA has been following closely the changes being proposed in the marine sanctuaries legislation in the course of its reauthorization.

The amendments to Title III of the Marine Protection, Research and Sanctuaries Act (the Act) adopted in the Senate demonstrate its intent that esthetics and recreation are not the primary values to be protected under the Act. S.2767, the bill that will reauthorize the Act for 1979 and 1980, deletes the preservation of waters for their esthetic values as a reason for creating sanctuaries, so the Act would specify that waters may be designated for their "conservation, ecological, and recreational values." In the Report accompanying S.2767, the Senate Commerce Committee states, "[T]he purpose of the program remains the preservation, protection and restoration of specific ecologically important marine areas." It concludes that, "esthetic reasons alone are

not sufficient for creating a sanctuary and then prohibiting or strictly controlling activities within it. Moreover, while the Committee feels there may be cases where sanctuaries should be created primarily for recreational reasons, it believes that most sanctuaries should be established for conservation or ecological purposes."

Congressman John Breaux, Chairman of the Oceanography Subcommittee, House Committee on Merchant Marine and Fisheries, conveyed the same intent in oversight hearings conducted July 24, 1978, and the House of Representatives appears likely to concur with the Senate position. The authorization has not yet been approved by the Congress because of controversies unrelated to Title III of the Act, and we expect that the statutory basis for the program will be revised in the direction outlined by the Senate amendments early in the next Congress.

The CPO nomination depends heavily upon the esthetic, and to a lesser extent recreational, values of the marine area to support the nomination. Fishery resources are discussed but commercial fishing would be exempted from any sanctuary regulation. No protection is suggested for cetaceans or the marine mammal and seabird habitats in the nominated area. Oil and gas development is described as the major threat to the resources of the area, but the suggested restrictions on this development relate to preserving the esthetic and recreational resources of the area.

The CPO nomination does impressively document the esthetic value of the San Diego offshore areas and the importance of considering them in national decisions on the uses of Federal resources off the San Diego coast. Once Congress makes a final decision on the precise language of the Act and provides its commentary on it, we will review the CPO nomination and its place in the overall sanctuary program. In the meantime, if you have any questions, please contact me or Jo Ann Chandler, Acting Director of the Sanctuary Programs Office.

Sincerely,

Robert W. Knecht
Assistant Administrator for
Coastal Zone Management

Responses To:

U.S. Department of Commerce

- [1-8] Corrections made.
- [9] The BLM is aware of these environmentally sensitive areas.
- [10] Your recommendations for tract deletions has been addressed in Alternative VIII-A.15.
- [11] Sentence has been corrected.
- [12] The statement in the ES also takes into account that a substantial amount of equipment is stored at each drill site and the capabilities of the shore based co-operatives and contractors are also being constantly updated. Strong arguments can be developed for more or less than the 25 percent figure, but it is dependent on weather conditions, size and location of spill, type of oil, etc. Twenty-five percent still appears to be a good average although this could be substantially reduced if dispersants are used.
- [13] Comments have been incorporated.
- [14] Section 308 of the Coastal Zone Management Act of 1972 as amended addresses the subject of compensation, grants and assistance to states affected by oil and gas development.
- [15] Correction made.
- [16] The Pacific right whale has been added to the table.
- [17] A discussion of the northern sea lion and the Guadalupe fur seal has been added to this section.
- [18] A scenario in which a catastrophic event eliminates a whale species from the entire North Pacific was not considered in this report because of the unlikelihood of such an incident ever happening. To answer your question, if there is an effective reproductive barrier between populations of the same species then they, by definition, are two separate species.
- "Species are groups of interbreeding natural populations that are reproductively isolated from other such groups." This is Ernst Mayr's definition of a species, a definition accepted and used by many biologists. This definition was the justification used for evaluating the impacts of a species for its entire range, i.e. worldwide.
- [19] The marine sanctuaries discussion in Section III.C.10 has been updated to reflect NOAA's current position.

THOMAS F. RILEY

CHAIRMAN OF THE BOARD OF SUPERVISORS

ORANGE COUNTY ADMINISTRATION BUILDING

10 CIVIC CENTER PLAZA, P. O. BOX 687, SANTA ANA, CALIFORNIA 92702

PHONE: 834-3550 (AREA CODE 714)



October 27, 1978

Mr. Frank Gregg, Director
Bureau of Land Management
Pacific OCS Office
Los Angeles, California

Dear Mr. Gregg:

In that the County of Orange has 42 miles of Beaches, three harbors and several bird sanctuaries, the prospect of offshore oil drilling and the transshipment of oil by tanks along our coastline is more than an item of passing interest to the coastal cities and the Orange County Board of Supervisors.

While it is recognized that we must be able to accommodate this nation's energy needs, it is our Board's unalterable position that it must be done in a manner consistent with our need to protect our environment. Of particular concern to the Board members is the protection of not only our harbors and shorelines, but, avoiding any further degradation of our air quality.

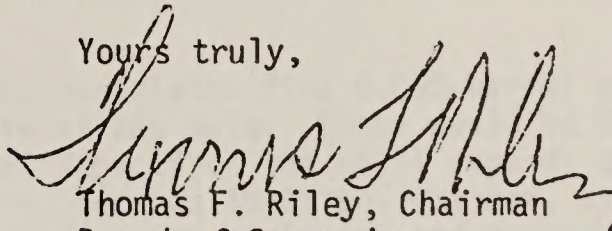
Accordingly, the Orange County Board of Supervisors is recommending that the Bureau of Land Management give consideration to the following recommendations:

- [1] 1) Those lease sale #48, tracts bordering state tidelands should be deleted as a measure to reduce pressure on drilling within the three mile state tidelands area.
- [2] 2) Because the congestion of coastline waters by offshore platforms could result in ships colliding with such structures and possibly result in the pollution of our mariner and shoreline environment the Board of Supervisors supports the adoption of the Comptroller General's May 2, 1978 recommendations to the U.S. Congress.
 - o Authorize the Coast Guard to designate obstruction - free shipping routes on the OCS along the lines of IMCO recommendations.
 - o Require the Coast Guard to relocate or adjust designated shipping routes when necessary to the exploration and development of oil and gas deposits.
 - o Authorize the Coast Guard to veto decisions made by the Corps which would obstruct designated shipping routes until the Coast Guard can relocate or adjust the shipping routes and provide adequate notification to all concerned parties.

- [3] 3) The State's oil spill contingency plan does not appear to be adequate and should be reviewed:
- o The plan does not give adequate job descriptions nor does it ascribe authorities and responsibilities for local plan implementation.
 - o The plan does not specify local government participation and responsibilities with regard to protection of City/County beaches and harbors.
 - o The plan does not provide for clean up equipment at any of the Orange County Harbors for a quick response time to potential oil spills from tankers traversing our coastal waters, offshore platforms and oil tanker off-loading facilities serving the steam generation plant at Huntington Beach.
- [4] 4) As an air and water pollution mitigating measures vapor emissions and certain operation restrictions (similar to those proposed for Sohio tankers) should be placed on tankers transferring oil from San Diego oil platforms to Los Angeles Harbor. (See attachment)
- [5] 5) All ships/boats servicing offshore oil facilities and ships should be required to use a low sulfur bunker oil.
- [6] 6) That in order to avoid the puncturing of pipelines carrying oil from the platforms to shore based facilities, the use of high pressure hydro equipment should not be used. Brushes developed by the industry for cleaning ship bottoms should be considered as an alternative.

We would appreciate your consideration of these measures as a means to protect the environmental quality of the Orange County Coastline.

Yours truly,


Thomas F. Riley, Chairman
Board of Supervisors
County of Orange

KPR:mm

Responses To:

Supervisor Thomas F. Riley, Chairman of the Board of Supervisors,
County of Orange

- [1] Deletion of partial tracts to maintain the State Oil and Gas Sanctuaries is addressed in Section VIII.A.1 of the ES.
- [2] BLM is continuing its coordination with the U.S. Coast Guard and the U.S. Army Corps of Engineers with regard to vessel safety. The BLM is dedicated to vessel safety and several alternatives to increase safety are discussed in Sections VIII.A.11 and 12 of the ES.
- [3] Cleanup equipment is required to be available at key locations determined by the geographic location of OCS operations. Also, containment booms are required on each platform and drilling vessel.
- [4-5] The Department of the Interior is currently in the process of developing air quality regulations for the OCS required by Section 5(a)(8) of the OCS Lands Act as amended.
- [6] Section 21(b) of the OCS Lands Act as amended requires the use of the best available and safest technologies which the Secretary of the Interior determines to be economically achievable.



**SOUTHERN CALIFORNIA
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Los Angeles County
LYNN WILSON, JR.
Councilman
City of Monterey

November 9, 1978

Mr. Harold R. Martin
Manager/OCS Office
U.S. Department of The Interior
Bureau of Land Management
300 North Los Angeles Street, Room 7127
Los Angeles, California 90012

Re: Draft Environmental Statement on OCS Sale No. 48

SCAG File No. MC-8860-DF

Dear Mr. Martin:

In accordance with Part II of OMB Circular A-95, we have disseminated information regarding the proposed project. In addition, the SCAG Executive Committee on November 2, 1978 reviewed the document and adopted the following comments:

Air Quality - The BLM should ensure that the lease sales and transportation of product across the coastal zone to shore are conditioned to have minimum air quality impacts. This would include enforcement of the Clean Air Act in federal OCS waters, and on water craft carrying oil to the state. This enforcement should also include applicable provisions of regional AQMP's prepared under the Clean Air Act, and state air quality regulations.

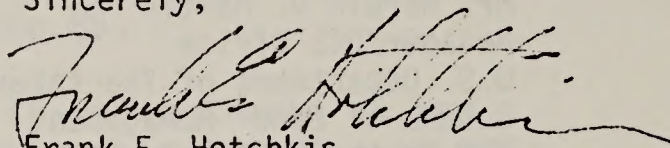
Oil Spills - The DES postulates five 5,000-barrel oil spills over the 25 year life of the sale. These would be 50% contained. Of course, the actual impacts of the spill depends on many unforeseeable factors, such as location, weather, etc. Current and proposed spill containment equipment and procedures are state-of-the-art on this coast. Still, the 50% that is not contained could come ashore in the mainland or channel islands. Therefore, to help protect against spills, tracts proposed in vessel shipping traffic lanes to Los Angeles and Long Beach Harbors should be deleted.

November 9, 1978

- [3] In addition, if a proposed Marine Sanctuary is nominated, any tracts within the nominated areas should be deleted or have special lease stipulations.

Thank you for the opportunity to review the DES. If you have any questions or comments, please contact Brian Farris at SCAG.

Sincerely,


Frank E. Hotchkis,
Comprehensive Planning

FEH/ed

Responses To:

Southern California Association of Governments

- [1] The Department of the Interior is currently in the process of developing appropriate air quality regulations as required by Section 5(a)(8) of the OCS Lands Act as amended. Also, Section 21(b) of the Act requires the use of the best available and safest technologies which the Secretary of the Interior determines to be economically possible.
- [2] The alternative to delete tracts in vessel shipping traffic lanes is discussed in Section VIII.A.11 of the ES.
- [3] The current status of marine sanctuary recommendations is discussed in Section III.C.10 of the ES. Deletions for marine sanctuaries is discussed in Section VIII.A.15.



CITY OF NEWPORT BEACH

November 9, 1978

Manager Pacific OCS Office
Bureau of Land Management
300 North Los Angeles St., Room 7127
Los Angeles, California 90012

SUBJECT: Proposed Outer Continental Shelf Lease Sale #48

- [1] I have been authorized by the Newport Beach City Council to respond to your request for comments on the proposed Southern California OCS Lease Sale No. 48. The City of Newport Beach is on record in strong opposition to any oil or gas exploration and development in the Outer Continental Shelf off the Southern California Coastline primarily because of the potential devastating effect on the coastal environment.
- [2] On July 28, 1976, the City of Newport Beach went on record as specifically opposing OCS Lease Sale #48, in a letter to the Director of the Bureau of Land Management. The City continues to oppose OCS Lease Sale #48.
- [3] Newport Beach is one of the most renowned regional recreational areas in Southern California. The beaches, bays and harbors are indeed a valuable public resource which must be protected. We dispute the wisdom of proceeding with OCS development when many serious environmental questions inherent in off-shore drilling remain unanswered. The most immediate impact on our City is the possible destruction or degradation of the coastline by an oil spill occurring offshore either from a pipeline or a platform.
- [4] We believe that the proposed Lease Sale (OCS #48) should be postponed until technological advances have been developed which will preclude the destruction of our most valuable public recreational resource. We suggest that there are many energy sources which are economically and environmentally preferable alternatives to OCS development.

Very truly yours,

Paul Ryckoff

Paul Ryckoff
Mayor

PR/dt

cc: Members of City Council
City Manager
City Clerk
City Attorney
Orange County, CAO
Attn: Paul Raver

Responses To:

Mayor Paul Ryckoff of the City of Newport Beach

- [1] The ES shows that the impact of proposed OCS Sale No. 48 are, on balance, minor to the coastal environment although possible oil spills could have a short-term significant impact.
- [2] Your opposition to the Lease Sale is noted.
- [3] We agree that if an oil spill was to hit Newport Beach, it could have a degradative short-term impact on beaches, bays and harbors.
- [4] If the Sale was to be held and exploration and development to occur, the best available and safest technologies would be used which the Secretary of the Interior determines to be economically achievable as required by Section 21(b) of the OCS Lands Act as amended.



SHELL OIL COMPANY

ONE SHELL PLAZA

P.O. BOX 2463

HOUSTON, TEXAS 77001

October 19, 1978

Mr. Bill Grant, Manager
Pacific OCS Office
Bureau of Land Management
1340 West 6th Street
Los Angeles, California 90017

Dear Mr. Grant:

The opportunity to comment on the draft environmental statement for OCS Sale No. 48 is appreciated. The following comments about various elements in the environmental statement are offered for your consideration as supplements to the remarks presented in formal testimony by representatives of the petroleum industry at the public hearings for OCS Sale No. 48.

In general, the conclusions that are drawn for each of the sections in the environmental statement are favorable to the ability of the industry to operate in southern California waters with a minimum influence upon the fish and wildlife resources. Therefore, only a few comments are provided here.

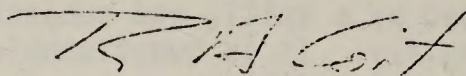
[1] Page 863, Paragraph 2, last two sentences, beginning with "Those impacts which do occur" The conclusions which have been drawn here about the influence of offshore gas and oil production on commercial and sport fishing is less than credible. In view of the history of the relationship of sport and commercial fishing in all areas of the United States where gas and oil are produced on the continental shelf, there is no reason to even speculate that commercial and sport fishing might be impacted. The thought expressed here is without any foundation in fact, and broad experience since the 1930's suggests just the contrary. In fact, there is considerable evidence that sport fishing activities which are oriented to platforms are enhanced. The wording here suggests that there may be an adverse influence - a supposition that is completely without foundation.

[2] Page 865, Paragraph 1. The Torrey Canyon experience is now ten years old. A change in the third line of the first paragraph on this page would be appropriate in order not to totally bias future considerations of dispersant use. It is suggested that the sentence at the top of Page 865 be amended to read, "This may have been due to the toxic effects of the emulsifier that was available at that time to disperse the spill."

- [3] Page 865, Paragraph 2, Line 7. "... especially so if dispersing agents were used" again biases current considerations for dispersant use and is based upon a ten-year old experience.
- [4] Page 865, Paragraph 5. The suggestion is made here that the nekton on Tanner and Cortez Banks would be impacted by an oil spill. These are rather deep banks to be affected by a spill, and subject to ocean currents that would tend to move oil rather rapidly. It is questionable that these two areas would in fact experience a "serious impact."
- [5] Page 867, Paragraph 4. Reference again to dispersing agents biases current evidence to have dispersants approved for use in the United States. This again reflects the Torrey Canyon experience where first generation materials and first generation application techniques were employed.
- [6] Page 876, Paragraph 6. Unless there is positive evidence that emulsifiers may be concentrated in birds which eat fish and invertebrates that have been affected by dispersant use, this statement should be deleted. If it is necessary to include this paragraph, it should be put in the past tense so as to reflect the historical nature of the events suggested here. A suggested wording is "Efforts a decade ago at cleanup or monitoring of oil spills were sources of serious damage to bird populations. At that time, the use of emulsifiers in cleanup of spilled oil was among the most obvious impacts. This practice led to a loss of food supplies and direct toxic effects on oiled birds." The paragraph should stop at this point since the rest is speculation. Logically, the paragraph should continue to say that dispersants have not been approved for use in the United States, except under emergency conditions, and thus, there is no record of these kinds of experiences here.
- [7] Page 893, Paragraph 4, Line 2. There is no evidence that chronic oil spills produce a "greatest effect" on pelagic seabirds. Secondary effects on these birds might occur but only in cases where the chronic presence of oil on the water impacted feeding habitats or the availability of food.
- [8] Page 898, Paragraph 4. Reference is made here to ship or aircraft noise. It is very doubtful that the small additional amount of noise that would result from gas and oil service boat and aircraft traffic would add significantly to the existing air and water traffic. On Page 1008, Paragraph 7, the statement is made that the "Catalina Channel-Catalina Island waters are among the most heavily utilized ocean boating areas of California."
- [9] Page 973. This section appears to have completely ignored the question of the impacts of bottom trawl fisheries on cultural values. It is quite likely that the fishing industry long ago obliterated all aboriginal sites in Channel Island waters. Therefore, the significance or value of any discussion here about impact of the petroleum industry on offshore cultural resources is highly questionable.

The opportunity to furnish these thoughts to the Bureau of Land Management is sincerely appreciated.

Very sincerely,



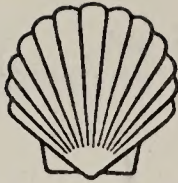
FOR: L. P. Haxby, Manager
Environmental Affairs

WFG:clr

Responses To:

Shell Oil Company
Environmental Affairs Office

- [1] The last sentence of this paragraph has been deleted. A clearer and more thorough discussion of the impacts on commercial and sportfishing occurs in Sections III.C.7 and 8 of the ES.
- [2] Comment noted. The entire paragraph has been revised.
- [3] This phrase has been deleted.
- [4] The intent of this paragraph was to suggest that a major oil spill is felt to offer the greatest threat to the nekton on Tanner and Cortes Banks. The paragraph has been revised slightly in hopes of more clearly identifying this point.
- [5] Comment noted and paragraph revised.
- [6] The paragraph has been revised. It is true positive evidence does not exist as to the long-term effects ingested emulsifiers have upon birds. However, indicators exist that emulsifiers may concentrate in bird tissues having deleterious effects upon the birds (Aldrich, 1970). Without positive evidence either way, a statement stating the possibility of an impact occurring is warranted in remaining in the ES.
- [7] Of the known impacts of oil development, chronic oil spills could produce the greatest negative effect upon seabirds.
- [8] Comment is noted.
- [9] The effects of bottom trawl fisheries on cultural values is unknown. This ES is an assessment of oil and gas exploration and development activities on the environment. Therefore, the discussion is appropriate.



SHELL OIL COMPANY

1200 MILAM STREET

P.O. BOX 576

HOUSTON, TEXAS 77001

R. H. NANZ
VICE PRESIDENT
EXPLORATION & PRODUCTION
WESTERN REGION

November 15, 1978

Subject: Draft Environmental Statement
OCS Sale No. 48

Mr. William E. Grant, Manager
U.S. Department of the Interior
Bureau of Land Management
Pacific OCS Office
300 North Los Angeles Street
Room 7127
Los Angeles, California 90012

Dear Mr. Grant:

We appreciate the opportunity to make comments on the Draft Environmental Statement for OCS Sale No. 48. We recognize it as a major effort subject to demanding judgments and certain criticisms, but which generally addresses the effects of the Sale realistically.

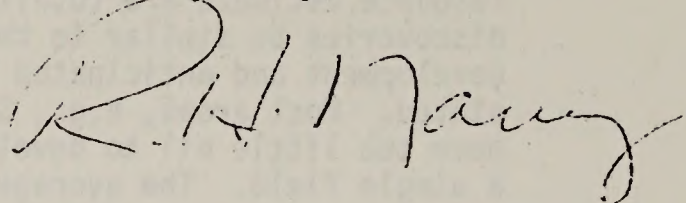
Our staff has reviewed the DES and our detailed comments are attached. This letter summarizes the principal areas of our concern which we feel require modification in the final EIS.

- [1] 1. In general, the tone of the DES overemphasizes the negative effects of the Sale. Conversely there is little or no discussion of the many positive effects such as benefits of employment, reduction of balance of payments deficit, the total economic benefits (social surplus) of OCS development to the nation as a whole, and the considerable benefits that would accrue to California and the nation from the discovery of substantial oil and gas supplies.
- [2] 2. The style of the DES is not uniform. While some predictions are clearly qualified, others are described without qualification. Many of these unqualified statements can be taken out of context to give a negative and incorrect idea about the certainty and level of impacts for Sale No. 48.
- [3] 3. Basic assumptions need to be more clearly stated. A statement made in the San Diego hearing by the Air Pollution Control Officer for that county reveals that he has misinterpreted the 1986 peak production year (used for many analyses and discussions) in the DES as the year of peak production for each tract. Further, peak production and peak air emissions will not likely be coincident.

- [4] 4. Several discussions of predicted impacts openly incorporate worst-case assumptions (especially air emissions and oil spills) when the data and potential impact are first discussed. Impact analyses are then made by applying the worst-case assumptions to most likely discovery volumes. This results in a worst-case impact prediction without qualification as to probability of occurrence. These qualifications need to be included in the impact analyses.
- [5] 5. The development scenario and impact ascribed to the minimum resource estimate are totally unrealistic. Should Sale No. 48 discoveries be similar to the minimum volume estimate, the development and anticipated impact would be far less than stated. Most areas, e.g., Santa Rosa, Tanner-Cortes, would have too little oil to develop even if it was all discovered in a single field. The average volume produced for each of the 18 platforms in the scenario is 2.6 million barrels - far too small to be economically developable for Sale No. 48 conditions. Therefore, if the Sale were to discover the minimum 47 million barrels, the actual impact would be produced by the drilling of some exploration wells (less than stated), and probably few, if any, platforms would be placed. This scenario is more realistic and should be emphasized.
- [6] 6. Although the DES assesses the overall socio-economic impacts of the Sale as insignificant, we believe that those impacts are substantially overstated (by a factor of at least 2 or 3). This observation is based on our estimates of direct employment for the Beta project (OCS Sale No. 35--San Pedro Bay Area) as well as testimony presented relative to the economic effects of delays in granting permits necessary for thermal recovery of California's heavy oil. Even with multipliers of as much as three for indirect employment, our estimates are substantially lower.
- [7] 7. Discussions of oil dispersants are based on outdated literature (Torrey Canyon) describing first generation chemical dispersants. Second and third generation low toxicity dispersants are available and approved for use by EPA. To this end enclosed is a paper in press by D. D. Smith and G. H. Holliday describing a recent series of dispersant tests in Southern California waters.

We appreciate the opportunity to review this DES and hope our comments will be helpful in preparation of the final EIS.

Yours very truly,



TJT/HAVS/CFM:MSP

Enclosures

cc: Western Oil & Gas Association
727 West 7th Street
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Los Angeles, California 90017

Enclosure
Review of Draft Environmental Statement
OCS Sale 48

- [8] Page 1, table - Because the entire ES is based on the resource estimates listed in this table, we think it is appropriate that the origin of the estimates be discussed in more detail. We feel the discussion should help to point out the problems and many assumptions involved in arriving at resource estimates.
- [9] Also, industry drilling on Sale 35 acreage in the Tanner-Cortes area has been very disappointing to date. These results effectively preclude the large (280 MM bbls) estimate for the Tanner-Cortes area, which we understand was originally made in May 1977. Significant reduction of the Tanner-Cortes estimate will change the focus, impact, and alternatives to the sale as discussed in the DES.
- [10] Page 5, p 3 - Type of platform for deep waters is not described.
- [11] Page 5, p 4 - Platforms may also be constructed overseas.
- [12] Page 20, p 5 - Although the 1980's production resulting from Sale 48 would compete with the Alaskan oil, half the Sale 48 oil will be produced past 1988 (and probably later if recent regulation changes and activity in Santa Barbara Channel is any indication) during the decline period of Alaskan oil.
- [13] Page 21, p 4 - State sanctuaries are shown on visual No. 1, not No. 2.
- [14] Page 44, p 4 - The resource estimates, development assumptions, and impact predicted for the Sale 35 acreage in the Tanner-Cortes area should be substantially reduced to reflect the discouraging industry drilling results to date. These reduced values need to be carried throughout the DES.
- [15] Pages 467-479 - To properly depict and compare the employment situation in San Diego, Orange, Los Angeles, Ventura and Santa Barbara Counties a table similar to II.G.2.b-7 for Monterey County is needed for each county. Also a summary table and a comparison to national figures would be useful.
- [16] Page 485, Section i - Economics need to be updated.
- [17] Page 494, table - Should not the units for per capita income be dollars not millions?
- [18] Page 530-534 - OCS Activity - Needs updating.
- [19] Page 541 - Reference should be made to Shell's Cognac platform which was installed in 1978 in 1025 ft. of water in the Gulf of Mexico. Also, a test of scaled down model of a guyed tower in the Gulf of Mexico, by Exxon ought to be mentioned.

- [20] Page 542, p 8 - No mention is made of platform construction overseas.
- [21] Page 572, p 1 - The specific contributions in percentages are listed in paragraph 5 for direct industrial discharges and should be similarly listed for the municipal pollution in paragraph 1.
- [22] Page 572, p 5 - Values in Table II.H.2-5 indicate only 3% of oil and grease result from industrial discharge, not 14%.
- [23] Page 576-577, table - To ease comparison with text, please total the values in a last column on right.
- [24] Page 582, table - Please add percentages beside values in table.
- [25] Page 582, p 4 - Shouldn't the first line of the paragraph should read: "Of the 2,200 metric tons of oil and grease in industrial wastewater discharged...?"
- [26] Page 583, p 3 - We believe the table reference should be to II.H.2-5. Also this paragraph summarizes or compares all discharges and as such should be located in the introduction on page 572.
- [27] Page 583 - At this point it would be appropriate to refer to a figure or figures like III.A.4.a.vii-1 or III.A.4.a.vii-2 which show location of sewage outputs and oil seep values.
- [28] Page 593 (next to last paragraph) - After a lease sale, exploratory drilling could start on the leased tracts. The exploratory drilling determines the presence of a hydrocarbon reservoir, its boundaries and characteristics. There are the following three types of exploratory drilling rigs: Jack-up rigs, which are presently limited to a water depth of 114m (377 feet), semisubmersibles, to 1818m (6000 feet) and drillships to 1818m (6000 feet).
- [29] Page 593, last paragraph - Delete everything after "...directionally drilled." The sentence is incorrect and confusing.
- [30] Page 594, p 2 - The production facilities control and commingle production from individual wells and separate the production into oil, gas and water. These facilities are generally constructed on a fixed leg platform, but could be installed on other structures such as a tension leg platform, semisubmersible or guyed tower. Alternately, a subsea production system could be used.
- [31] Page 594, p 4 - The wet tree has been installed in water depths to 142m (470 feet). Systems have been developed for up to 2000 feet of water. The dry tree has been installed in water depths to 163m (538 feet). It's depth limitation is a function of the atmospheric diving system used for service. Currently a service system is available which can operate in 1200 feet and could operate in 2000 feet of water with relatively minor modifications. Installations to date have been in relatively shallow water not because of equipment limitations, but because that where the oil fields were found. Design studies indicate that there are no technical barriers to operating in water depths to at least 914m (3000 feet).

- [32] Page 595, p 3 - The following statement should be added: "There are no technical barriers to install 30-inch pipelines in up to 3000 ft of water, and possibly deeper".
- [33] Page 595, p 4 - Submerged pipelines are usually not buried. They are normally buried from the breakwater to shore only.
- [34] Page 597, Table II.H.3-1 and Table II.H.3-2 - Delete "Max."
- [35] Page 599, Table II.H.3-3 - Estimated maximum water depths, (feet):
- | | |
|----------------------------|-------|
| 1.a Jack-up rigs | 377' |
| 1.b Drill ships | 6000' |
| 1.c Semi-Submersibles | 6000' |
| 2.a.2 Fixed leg concrete | 600' |
| 2.a.3 Fixed leg steel | 1500' |
| 2.b.1 Wet Tree | |
| 2.b.1.a Current | 2000' |
| 2.b.1.b Foreseeable future | 3000' |
| 2.b.2 Dry Tree | |
| 2.b.2.a Current | 1200' |
| 2.b.2.b Foreseeable future | 3000' |
- (Depths of 250 and 530 feet respectively for subsea completions are not technical limitations)
- [36] Page 601 - In conclusion, it is apparent that the current deepwater technology will meet technical needs for nearly all tracts. Advanced technology may be required for tracts in greater than 3000 feet of water.
- [37] Page 619, p 1 - Should not the reference be to Section I.E.?
- [38] Page 619, p 4 - With current EPA regulations and the State agencies regulations, it is not necessarily true that industrial effluents will increase as assumed. Also have any statistics been presented that prove marine productivity will decrease in the future? Should not some sentences in the paragraph be qualified by using the words "possibly" or "may" more often? Also no decline in marine fisheries is shown by statistics in Section II.G.2.d.i. Finally, industry results in the Tanner-Cortes area do not suggest that "high rates" of oil development will occur from Sale 35 acreage.
- [39] Page 641, p 4 - Pipeline burying is also accomplished with a plow.
- [40] Page 664, p 3 - Reference should be to Section I.E. Also the Sale 35 platform prediction seems extremely high, and 1968 Santa Barbara platform prediction seems somewhat high.

- [41] Page 647, Tanner-Cortes Bank - As stated before, industry drilling makes these numbers appear too large.
- [42] Page 648, p 5 - The number of miles of pipeline is probably overstated in view of the disappointing results of exploratory drilling on the Tanner Banks.
- [43] Page 657, table - For increased clarity, please add percentages to the right of the "best estimate" values.
- [44] Page 659, p. 3 - This paragraph states that the tanker related spill predictions are a worst case projection. Because the projected tanker spills represent 3/5 of the total projected Sale 48 related spills, the worst case nature of the projection should be restated whenever the oil spill projections are used to predict impacts in the DES.
- [45] Page 663, table - Should not the "total" value in this table be the same as the tanker total for Sale 48 in Table III.A.4.a.ii-1?
- [46] Page 667, table - Elsewhere in the DES (page 688) it says 50% of the Santa Barbara Channel oil will be pipelined, and 50% will be tankered in the "Mixed A" scenario. Table III.A.4.a.iv-1 shows .69 spills from the Sale 48 Santa Barbara Channel to Ventura pipeline portion of the "Mixed A" scenario. The .69 value seems to mistakenly assume all 300 million barrels of the Santa Barbara Channel oil will be transported by pipeline (2.3 spills per 1 billion barrels handled x .3 billion = .69 spills) instead of 150 million barrels. This would reduce the tanker and total oil spill probability to .35 spills. The value appears also to be incorrect on page 655 - Table III.A.4.a.ii-1.
- [47] Page 669, p 2 - How does the volumetric oil spill history from the State water platforms compare with the volumetric (e.g., number of spills and amount of oil spilled) predictions used to predict future OCS spills?
- [48] Page 669, p 3 - Somewhere in the DES the volume of oil predicted to be introduced into the environment from Sale 48 during the life of the project should be compared to the volume introduced by other known sources, e.g., runoff, sewage, seeps. On page 665, a Gulf of Mexico value which shows that .0014 percent of total production is involved in pipeline spills could be used to predict some 10,000 barrels of pipeline-spilled oil could be added during Sale 48 (.000014 x 715 million barrels). Similar values for platforms and tankering could be used. We feel this approach will show the true level of the Sale 48 oil spill contamination in comparison to the other sources.
- [49] Also, the municipal, industrial and natural sources of pollution fit the definition of chronic pollution (as listed on page 785), and they should be labeled as such in this section. We feel that whenever Sale 48-related chronic oil pollution is considered (e.g., the discharge of formation water which contains a small amount of oil or small spills), the input from ongoing chronic pollution should also be mentioned. This will help put the Sale 48 "chronic" impact in the proper perspective. Examples of places where this could be done are: page 790, p 4; page 867, p 1; page 869, "Potential hazards and their sources"; page 885, p 4.

- [50] Page 671, p 4 - Generally the DES does not consider the possibility of reinjecting the produced formation water for pressure maintenance. It is not probable that all the water produced in Sale 48 will be discharged into the ocean, and this assumption should be pointed out.
- [51] Page 730, p 2 - In conjunction with the presentation of the oil spill trajectory results it should be reemphasized that they do not take into account weathering of the oil, or more importantly in the 10, 30 and 60 day cases, the model assumes no clean-up operations. Also these assumptions are not always mentioned when the statistics are used in subsequent sections.
- [52] Page 731, table - Table lists probabilities for impact from platforms, not pipelines as in title.
- [53] Page 735, table - We assume the table caption should state that the table represents the "worst case (60 days)" as previous tables have. Furthermore, this table appears to be one of the most important tables in the DES, and yet no discussion is devoted to explaining how it was generated, exactly what it means (and does not mean) or how it is to be used. We read a specific value in the table as follows: Given that Sale 48 is held, all of the resource and development assumptions are correct, and the assumptions about the numbers of oil spills and the oil spill trajectory models are correct, then a value in the table predicts the probability (in percent) that a spill will strike some spot in a designated segment for a designated sale and transport scenario. It does not say that oil will cover all of that segment, and it says nothing about volume of oil striking the point in the segment. Is the above correct? If so, this sort of discussion should be added to Page 730.
- [54] Page 740, table - This again appears to be a very significant table and deserves more explanation and qualification as described above. It needs to be emphasized first that many of the designated sea resources cover very large areas and are located in the sea close to most of the potential spill locations. As a direct consequence, the probability of a spill reaching some part of these resource areas is naturally high. Secondly the percentages listed in the tables do not imply that the spill will cover the entire area of designated resource at one time, nor that the resource will be destroyed. Finally the caption to the table should (as before) use the words "worst case (60 days)".
- [55] Page 763, last paragraph - first sentence - The oil spill trajectory model does not "show a wide range of impacts from insignificant to quite significant....", but rather attempts to quantify the probability that a spill will reach various resource categories. The significance of the impacts is covered in the subsequent sections.
- [56] Page 765, table - What is the ship collision record with State-water platforms?
- [57] Page 768, p 2 - An earthquake source should be defined as geological feature that shows evidence of geological, historical, or instrumental seismicity. One indication of geological seismicity is evidence that the feature has displaced young geological deposits.
- [58] Page 769, p 1 - (API, 1976) should be replaced by (API, 1977).

- [59] Page 800, p 3 - The ten day estimate to clean up a spill described in this section is the only estimate of this kind in the DES. Should it not be used in more discussions of oil spill impacts?
- [60] P 830, p 6 - The language here seems too strong - all of the predictions are probabilistic, not fact.
- [61] Page 850, p 5 - The probability of a spill occurring and reaching the mainland Santa Barbara Coast segments is not high, but low with one exception (see table III.A.4.b.iv-5). The only coastline segment with a significant threat is the Malibu segment 27 which is outside of the Santa Barbara Channel as normally defined.
- [62] Page 851, p 1 - If the most critical time period to consider for a spill is the first 3 days, please include the data in tabular form in Section III.A.4.b.iv.
- [63] Page 853, p 4 and 5 - It appears paragraph 5 should precede paragraph 4.
- [64] Page 855, p 7 - No discussions of other areas in this section have introduced the "given a spill" statistics which seem to be only an interim step toward the final spill probabilities (like Table III.A.4.b.iv-5).
- [65] Page 858, last paragraph - The paragraph should be modified to at least consider oil spill clean-up potential.
- [66] P 859, p 1 - The probabilities cited in the paragraph do not justify the conclusions of the paragraph. The 10 estimated oil spills predicted in the cumulative model are not all predicted by any model to all hit the Channel Islands ("If several of these areas received a spill every other year...") The model only suggests that one or more spills will probably touch some shoreline segment of the four Northern Channel Islands during the life of the project. None of the statistics in the DES suggest that the same locality has any probability of being hit every other year for the duration of the project. In this same light speculation on successive hits on Pt. Dune seems inappropriate.
- [67] Page 859, p 2 - Please define the time frame implied by "long lasting". We are not sure the previous discussion on recovery rates and the oil spill probability models predict long lasting impacts (say 10 or 20 years).
- [68] Page 860, p 5 - The word "severe" seems too strong for this paragraph. We suggest significant.
- [69] Page 864, p 1 - We believe this section is supposed to discuss Santa Barbara Channel impacts. If so, the total spills greater than 1000 barrels predicted by the model is 3.1 not 5. Also doesn't the oil spill study provide an estimate for smaller spills so that the "many minor spills" could be quantified?

- [70] Page 865 - The Torrey Canyon is referred to. That experience is now ten years old. We suggest that a change in the third line on this page would be appropriate in order not to totally bias further considerations of dispersants in this EIS. We suggest that the sentence at the top of the page be amended to read "This may have been due to the toxic effects of the emulsifier available at that time to disperse the spill."
- [71] Page 865, p 2, Line 7 - "... especially so if dispersing agents were used." This again, biases current considerations for dispersant use.
- [72] Page 865, paragraph 5 - The suggestion is made here that the nekton on Tanner and Cortez Banks would be impacted by an oil spill. These are rather deep banks to be affected by a spill and subject to ocean currents that would tend to move oil rather rapidly. We question that these two areas would in fact experience a "serious impact."
- [73] Page 867, p 1 - The word "catastrophic" is hardly appropriate to describe a spill when in the next sentence it says: "Impact on nekton resulting from such an event are likely to be relatively short term and insignificant considering the impact of the Santa Barbara spill."
- [74] Page 867, p 4 - Again reference is made to dispersing agents and we feel that the manner in which this is stated biases current efforts to have dispersants approved.
- [75] Page 874-5 - The discussion of the rehabilitation of oiled birds based on Aldrich (1970) is pretty old, and probably should be replaced with discussions by the International Bird Rescue Research Center at Berkeley.
- [76] Page 876, p 6 - Again, here a further reference is made to the impact of emulsifiers, based on 1970 thinking. Some change might be appropriate.
- [77] Page 878, table, and Page 879, Figure - We suggest that either the designation and wording of Category A Sensitivity ("extreme threat potential; possibility of catastrophic impact") is overstated, or else too many areas of less than "extreme threat potential have been designated on the adjoining map. Many of the "extreme designated areas are near heavily populated areas (San Diego, Palos Verdes, Malibu, Santa Barbara, Ventura, Oxnard). Clearly human disturbance does not appear to be a concern here. In addition these near shore areas are already subjected to large amounts of oil due to natural oil seeps, municipal waste water, etc. Some areas have a legitimate reason to be designated high threat potential (extreme is too sensational) such as San Miguel, Anacapa, and Santa Barbara Island, but combining these with more ordinary areas just creates credibility problems. Also, the pinniped reference for this section on birds should be deleted.
- [78] Pages 880-883 - The impacts on ASBS's are discussed in Section III.C.1.j. Many of the animals on this list are not birds.

- [79] Page 893, p 4, Line 2 - We question that a chronic oil spill would produce a "greatest effect" on pelagic seabirds. Secondary effects on these birds might occur but only if a case of chronic oil in the water impacted their feeding habitats or availability of food. This is the first time we have ever seen a reference to chronic oil spills and their effects on seabirds.
- [80] Page 898, p 4 - Reference is made here to ship or aircraft noise. We seriously doubt that the small additional amount of noise that would result from service boat and aircraft traffic would add significantly to the existing air and water traffic. On Page 1008, Paragraph 7, the statement is made that the "Catalina Channel-Catalina Island waters are among the most heavily utilized ocean boating areas of California."
- [81] Page 905, p 4 - Table III.A.4.b.iv-5 shows for San Miguel Island a 30-36% probability for the "combined" model and 29% for the import model. Together this makes 59 - 65% probability for a spill to hit somewhere on San Miguel Island (not necessarily the bird rookeries), and not 100% as stated.
- [82] Page 907, table - This list differs from the other endangered table which begins on page 333. Shouldn't they be the same?
- [83] Page 917, p 4 - The area around Pt. Dume does not have a "very high probability of being oiled" (31% for entire coastline segment.) We suggest replacing the words "very high" with "higher".
- [84] Page 929, p 4 - We suggest rather than using the words "relatively good probability" the actual value of 15% be used. In any case 15% probability which applies to the entire segment, not just Mugu Lagoon, is not a "good probability"
- [85] Page 932, p 5 - We feel this summary paragraph is more negative than the section it summarizes. For example none of the shore line segments along which the estuaries are located have substantial probabilities of oil spills hitting them.
- [86] Page 937, p 3 - We think it would be worth emphasizing in one last sentence in this paragraph that by far the most important island in terms of pinniped activity is San Miguel Island (Page 901), and that the San Miguel segment has a relatively low probability of being hit by oil.
- [87] Page 937, p 4 - Some 1968 Santa Barbara channel leases near the Channel Islands have recently expired. This should reduce the USGS volume estimates (and thus oil handled in the Channel) and remove some of the nearest most threatening tracts from the combined impact probabilities.
- [88] Page 943, p 3 - We are not aware that California sea lions, northern fur seals and elephant seals feed on Tanner/Cortez Banks. This is a long way from their hauling beaches (about 100 miles) and we are surprised to see these animals so listed.
- [89] Page 943, p 4 - It is not clear what this paragraph is trying to say, and the data manipulation may not be statistically correct. Please clarify or remove.

- [90] Page 946, table III.C.1.j-4 - How were the percentages of marine populations "injured, destroyed or displaced" calculated?. Are these values supposed to show the proportion of casualties for all flora and fauna in each category, or just the proportion affected of those actually touched by an oil spill, or something else?
- [91] Page 973 - This section appears to have completely ignored the question of the impacts of bottom trawl fisheries on cultural values. It is quite likely that long ago the fishing industry obliterated all aboriginal sites in the Channel Islands area. Therefore, we question the significance of any discussion here about impact of the petroleum industry on offshore cultural resources.
- [92] Pages 976-988 - Most of this section is descriptive and either belongs in Section II.G.1.F.iii or should be omitted.
- [93] Page 1003 - Sale 35 drilling results, recent drilling, and tract expirations in the Santa Barbara Channel should cause the predicted cumulative impacts discussed on this page to be modified. Table III.C.7-2 on page 1004 should likewise be modified.
- [94] Page 1004, table - Cumulative platform value for San Diego should also be 3.
- [95] Page 1006, p 2 - "Traffic congestion in the vicinity of the harbors could increase appreciably". The predictions in paragraph 3, page 649 allow calculation of the maximum anticipated congestion resulting from Sale 48. The calculated 32 trips a week for all Sale 48 would appear to be a minor traffic increase when spread through all the SBC port facilities rather than an "appreciable" one.
- [96] Page 1012, table, and p 1 - It is not very clear that the probabilities in the table are "given a spill" type values and not total oil spill probabilities. Also, please verify how is a "high density recreational boating area" defined; is it the area within the blue line on Visual No. 4? Also, the discussion should note that the probabilities are high for many spill launch locations because the resource covers such a large area. Finally it should be stated that these data do not predict that all or large areas of boating opportunity will be spill-covered at any one time.
- [97] Page 1019, table - There must be an error in the column listing oil forgone on the sanctuary line called Waters off Southern California.
- [98] Page 1021, table - The text states that the Sale 48 values are 1986 worst case predictions. Are the South Coast Air Basin figures used for comparison also 1986 worst case estimates, or something else?
- [99] Pages 1089-92 - This section seems too unquantified yet strongly negative in its prediction of impacts. While some impacts on shorelines may occur, the impact on most stretches of shoreline will probably be no impact.

- [100] Page 1092, p 4 - It would appear that this paragraph belongs in the section on esthetics.
- [101] Page 1093, p 5, and page 1095, table III.E.2-1 - Are there statistics which show more quantitatively the sensitivity of the crops to the levels of air pollution which could be compared to the worst case pollution levels for Sale 48? For example to what extent would per acre yields decrease in the pollution levels predicted for Sale 48? If not, the impacts are difficult to prove.
- [102] Page 1101, p 5; Page 1107, table - The table is supposed to show "oil spill hits on seabird breeding and nesting areas...". How were these numbers generated? We would assume that they are totaled probabilities of oil hitting all shoreline segments which include nesting sites. Are not most nesting sites above the surf splash zone and thus not directly oiled by a water-born spill? The text and the table caption should reflect these (or other correct) details of the predictions in the table.
- [103] Pages 1108-1114 - For completeness, the discussion should summarize and incorporate the total probabilities of oil hitting the shoreline segments in which the nesting areas are located.
- [104] Page 1130, table - The San Diego line value for the Sale 48 and cumulative projects column is apparently incorrect.
- [105] Page 1131, p 2 - Either the referenced tables are reversed, or captions are incorrect or unclear.
- [106] Page 1131, p 1 - Should not the 1-3% increase in Santa Barbara and Ventura waste water treatment due to Sale 48 be characterized as small rather than moderate, and similarly the 10-14% increase for Sale 48 plus other cumulative projects be described as moderate rather than significant? Also page 1135, p 3 uses the same terms.
- [107] Page 1131, p 3 - The above argument can also be made for the water demand discussion and summary statements. The terms are used again on page 1136, p 2.
- [108] Page 1131, p 4, and page 1135, p 1 and 2 - The water supply terms: applied water demand, firm water supply, net demand and deficient water need to be defined.
- [109] Pages 1152 and 1153, tables Both tables need a percentage column which shows the increases due to Sale 48 alone.
- [110] Pages 1155-1165 - The entire section on recreation is written as though the Sale 48 assumptions are fact. Most of the verbs are "will" and should be "could", or "might", or "may" to conform with the rest of the DES.

- [111] Pages 1156 and 1157 - The table on page 9 shows that no new onshore terminal facilities and no new production facilities are assumed for Sale 48 and only four 15-acre operations facilities are assumed for the sale. The discussion on pages 1156 and 1157 should state these facts and temper the discussion to reflect these assumptions. Also any nearshore construction would be controlled by the Coastal Commission policies and the impact probably minimized.
- [112] Page 1163, p 1 - The meaning and origin of the 74 percent for Santa Cruz Island is not clear.
- [113] Page 1171, p 2; 1172, p 2 - Page 9 shows that the most probable assumption about refineries is that no refineries will be built as a result of Sale 48. These two references to new refineries would seem inappropriate.
- [114] Page 1186, p 1 - Does the Curtis Harris model take into account differing age distributions in various areas when it makes its projections? If not the projections are suspect, especially as they relate to schools, hospitals and housing.
- [115] Page 1190, p 3, 4 - Should the 1.1 percent population increase projected for Santa Barbara be termed "significant" and the 3.0 percent increase for Ventura be termed "major"? These terms overstate the impacts.
- [116] Page 1193, p 3 - We believe that the projection of population growth caused by Sale 48 are overstated by a factor of at least 2 to 3 based on our estimates of direct employment for the Beta Project (development in San Pedro - OCS Sale No. 35). We believe this to be true even with a multiplier of 2.53 seconds: induced employment for every single direct employment (see last paragraph p. 1199). However, accepting the DES figures, the impacts on the five-county area are minor to insignificant.
- [117] Page 1214, p 2 - A projected 3.16 percent potential deficit (or tax increase) does not sound like a change of "major proportion". It should be called minor.
- [118] Page 1216, last line Figure reference should be II.G.2.d-6 not 7.
- [119] Page 1218, p 2 - Is there a federal program to help coastal communities impacted by OCS development. If so it should be mentioned as it might alleviate some of the projected difficulties which Ventura might incur.
- [120] Page 1218, p 6 - Using the most probable development assumption, the total capital investment seems too small.
- [121] Page 1235 - The state and local governmental units which give permits and thus exercise control over potential impacts should be described in more detail.
- [122] Page 1242, Stipulation No. 4 - Wells: In areas where bottom trawling occurs, subsea wellheads and temporary abandonments or suspended operations that leave protrusions above the sea floor, shall be marked with buoys or, shall be protected, if feasible, by a shroud which will allow commercial trawl gear to pass over the structure without snagging or otherwise damaging the structure or the fishing gear.

- [123] Page 1244, stipulation No. 6 - This stipulation could cause disagreement between lessee and lessor concerning the economic viability of a field using the pipeline transportation method. We suggest adding another section to the stipulation: If before development begins, the lessee feels the requirement for pipeline transportation will change the development of a tract from an economically viable to an insufficiently profitable venture, and after consultations between lessee and lessor, the lessor still requires pipeline type transport, the lessee will have the option of selling the tract back to the BLM for the original bonus price plus reasonable interest.
- [124] Pages 1262-1290, Chapter J - In most cases, these pages which summarize earlier more detailed discussions within the DES are clearly more negative than the original discussions. The impacts of the proposed sale are all probabilistic, and yet this chapter discusses many potential impacts as if they must happen if the sale is held. The discussion should include what proportion of various resources could be affected by sale-related activities as is done in some subsections, and not make definite unqualified statements such as: "The canopy community of kelp beds will suffer mortality" (page 1265). There is even a statistical question as to whether any future event, defined on the basis of probability, is truly "unavoidable".
- [125] Page 1263, p 2 - It should be mentioned that within the setting of the seeps, runoff, and sewage the Sale 48 effects are small.
- [126] Page 1263, p 3 - These estimates of number of spills (9 and 29) are not listed elsewhere in the DES. They are either incorrect or based on some estimate of spills which is not clear from the context.
- [127] Page 1263, p 3 - Oil spill clean up potential should be referenced in this paragraph.
- [128] Page 1263, p 7 (copepods) - In contrast to this paragraph, the NAS study referenced elsewhere in the DES found no evidence for food chain magnification.
- [129] Page 1266, p 2 - While a few ASBS's could have platforms 3 miles away, the location of most Sale 48 tracts makes this very unlikely. The paragraph should reflect this.
- [130] Page 1267 - The assumption that only four 15-acre parcels should be needed for Sale 48 should be mentioned. Also the fact that there is a very low probability of oil entering the estuaries and salt marshes should be included.
- [131] Page 1268, p 1 and 2 - This discussion seems to confuse the concept of chronic vs. major spills.
- [132] Page 1271, p 2 - The model which predicts air impact uses worst case background to calculate Sale 48 related pollution levels. This should be restated.
- [133] P 1285, p 5 - The most likely land needs for facilities is 60 acres not "several hundred".

- [134] Page 1289, p 2 - This is the first place crime statistics have been mentioned in the DES. Shouldn't this discussion be in the body of Chapter III and be summarized here? It would be useful to show the statistics in the form of percents: e.g., 7.4 per 100,000 is .0074 percent.
- [135] Page 1283, p 4 - Projected debt should also be characterized by its percentage (3.3 percent).
- [136] Page 1291, p 1 - It could also be pointed out that unless exploration and development are started soon, the oil will not be available when demand could possibly be the greatest.
- [137] Page 1292, p 3 and page 1298, p 1 - State in each paragraph that the anticipated Sale 48 chronic pollution is small compared to ongoing natural seeps, sewage and runoff.
- [138] Page 1298, p 1 - We don't recall seeing elsewhere in the DES, ongoing chronic pollution, (municipal, oil and gas operations and seeps) being blamed for any bird population declines.
- [139] Page 1308, p 1 - If resource estimates in the Tanner-Cortes area are lowered to reflect the industry drilling, the percentage of the Sale 48 resource estimated to be in Santa Barbara Channel will increase.
- [140] Pages 1310 and 1311, tables - The section should also show total probability of spills hitting various land segments.
- [141] Page 1312, p 6 - The natural oil seeps and large municipal waste load dumped into Santa Barbara Channel preclude the use of the word "pristine".
- [142] Page 1313, p 2 and 3 - Both paragraphs should note that according to the spill model, the coastline segments containing these resources all have relatively low probabilities of being hit by a spill.
- [143] Pages 1316 and 1317 - Total probability of oil spills hitting various coastline segments should be shown in tables and discussed in text.
- [144] Page 1319, p 1 - Gas postulated in Santa Rosa area is 23 billion cubic feet, not 2.3.
- [145] Pages 1328 and 1329 - This section will change if the volumes are reduced in accord with industry drilling results to date.
- [146] Page 1330, p 4 The phrase "major catastrophic events" (oil spills) is redundant and unnecessarily dramatic. Also the "oil spills which will be reduced by 50%" should be defined as only Sale 48 spills, not the total cumulative projects spills.
- [147] Pages 1334-1337 - The total probabilities of oil spills reaching various coastline segments should also be shown in tables and discussed in text. Otherwise the meaning of statements like that on page 1337, paragraph 1 cannot be evaluated.

- [148] Page 1343 - Another alternative would be to selectively omit troublesome tracts in various areas, but not eliminate any entire areas.
- [149] Page 1349 and 1350 - While the minimum resource estimate may be valid, the development scenario and resulting impacts are not. Most areas have volume estimates which are too small to develop and transport profitably even if all the oil was in one tract in shallow water. The average volume produced for each of the 18 anticipated platforms would be 2.6 million barrels - far too small to be economic with Sale 48 conditions. Therefore if the sale were to turn out this way, the activity and resulting impact would be very small because much of the oil would not be developable.
- [150] Page 1352 - Oil Spill Discussion - Although the statistics predict about 20 percent more oil will be spilled in the 100 percent tanker scenario than in the "normal scenario, the oil spill probability data (the untitled and misreferenced table on page 1354) suggest that in most cases there is a lower total probability of oil reaching shorelines in the 100 percent tankering scenario. This is especially true on the sensitive Northern Channel Islands. In addition, tanker spills would probably be far from land and would be more readily cleaned up before reaching land. Both aspects should be discussed.
- [151] Pages 1352, 1353, and 1354 - The tables and references to them in the text are confusing.
- [152] Pages 1364, p 2 - For a frame of reference, the last sentence should state that the predicted 0.82 less spills for the pipeline scenario is out of a total of 5.1.

Response To:

Shell Oil Company

- [1] Environmental impacts of oil and gas operations tend to be negative. The positive aspects, such as the oil and gas developed and jobs created, are discussed in the appropriate sections (i.e., I.A.2, III.E.15).
- [2] Not all potential impacts are quantifiable. The entire EIS is based on the assumption that oil and gas operations will take place in the years and at the level of activity described in Section III.A. If these assumptions were to change due to new information, many of the impacts or levels of impacts would be different.
- [3] Basic assumptions are outlined in Section III.A in great detail. Due to the tankering and barging of a majority of the proposed Sale No. 48 oil, it was felt that the peak tankering and barging year would also be the peak emissions year.
- [4] The probability of occurrence of oil spills is included in the oil spill trajectory analysis. Air Quality problems occur when a number of atmospheric and meteorologic conditions happen simultaneously. Although these adverse conditions may exist for only part of the year, it is those conditions that are of concern. Normal conditions may not create a significant impact but adverse (worst-case) conditions may have a heavy impact.
- [5] The amount of resource in an area cannot be determined until actual production takes place. The minimum resource estimate states that there is a 95 percent probability that at least this much activity will result from proposed Sale No. 48 if it is held.
- [6] It is difficult to compare simple multiplier analysis to the Harris Model outputs. The Harris Model multipliers account for intercounty or interstate movements of workers and manufacturing entities. The Richardson-Gordon approach (POCS Reference Paper No. VI), analyzing intracounty movement, produces similar results.
- [7] Dispersants are recognized as a viable and potentially useful tool in the future. This statement is based on the new information that is becoming available and the fact that EPA has now approved several for use. All new information is appreciated in evaluating mitigating measures.

- [8-9] The source of the resource estimates is the U.S. Geological Survey, Conservation Division, Menlo Park, California, and it included the best available information at the time of estimate. As new geophysical and geological data becomes available, any and all estimates may change.
- [10] Deep water technology is discussed in Section II.H.3.
- [11] Correction made.
- [12] Comment noted.
- [13] Correction made.
- [14] When new information becomes available, resource estimates will be revised.
- [15] Employment and unemployment data is described in the text for each of the Southern California counties.
- [16] The economic data used 1978 forecasts. Actual 1978 data is not available until 1979.
- [17] Correction has been made.
- [18] Sections have been updated as suggested.
- [19] Shell's Cognac platform has been added. Deepwater technology is discussed in Section II.H.3.
- [20] Construction of platforms in foreign countries has been added.
- [21] Comment noted.
- [22] ES changed to reflect comment.
- [23-24] Comment noted.
- [25] ES changed to reflect comment.
- [26] Table II.H.2-10 is correct.
- [27] Comment noted.
- [28-29] ES changed to reflect comment.
- [30] As noted in ES.
- [31-32] ES changed to reflect comment.

- [33] For the Southern California area, the submerged pipelines are normally buried from the breakwater to shore only. However, with Title 49 Code of Federal Regulation, Subpart A, Transportation of Liquid by Pipeline, submerged pipelines may be buried in water depth up to 200 feet.
- Currently BLM, New Orleans OCS Office, is requiring that all BLM pipelines to be buried 3 feet in water depth up to 200 feet.
- [34] Table II.H.3-1 does indicate the estimated maximum water depth ranges. These water depths were analyzed from the location of tracts and water depth information contained in the Outer Continental Shelf Resource Management Map - National Ocean Survey.
- Table II.H.3-2 does indicate the estimated maximum water depth based on the best available information.
- [35-36] ES changed to reflect comment.
- [37] The reference should be to Section I.E. This error has been corrected.
- [38] This entire section is prefaced with the statement that "Making meaningful predictions about the future environment is very difficult....some broad generalization can be made..." The comments that follow are exactly that - broad generalizations. They cannot be proven. However, it is felt that the statements are reasonable in light of available information. Lastly, the ES does not state that high rates of oil development will occur in the Tanner-Cortes area but that they "...could occur".
- [39] ES changed to reflect comment.
- [40] ES changed to reflect comment. The estimated number of platforms is based on the best available information from U.S. Geological Survey.
- [41] The estimated number of drillings is based on the best available information from U.S. Geological Survey.
- [42] The estimated number of miles of pipeline is based on the best available information from U.S. Geological Survey.
- [43] That is the purpose of Figures III.A.4.iii-1 and III.A.4.iii-2.
- [44] All oil spill predictions represent a worst-case projection and is so stated in Section III.A.4.b.iv.

- [45] This total reflects tanker leg probabilities that are not reflected in Table III.A.4.a.ii-1.
- [46] The reason for the value of .69 is that this pipeline also includes the oil from the Tanner-Cortes and Santa Rosa areas.
- [47] There is no data available on spills from platforms in state waters. The only realistic data from platforms in U.S. OCS waters is in the Gulf of Mexico which is why that data base is used.
- [48-49] The volume of oil from other sources is shown in Figures III.A.4.a.vi-1, III.A.4.a.vii-1, III.A.4.a.vii-2, and III.A.4.a.vii-3. In discussing impact areas, the cumulative effects of these discharges are shown in the shoreline segments listed in section III.A.4.b.iv.
- [50] Comment has been incorporated.
- [51] The assumptions used for modeling were discussed in Section III.A.4.b.i (Description of the Model).
- [52] Correction incorporated.
- [53-55] Comments have been noted and incorporated.
- [56] There are none indicated in this reference, nor are we aware of any.
- [57] The term "movement" refers to evidence.
- [58] Correction incorporated.
- [59] Data is taken from the oil spill trajectory model and utilized by each analyst. Time of cleanup will vary depending on many factors.
- [60] The probability of an occurrence is so high that to change wording to "might" seems too weak. The probabilistic nature of the model is mentioned throughout the text.
- [61] The spill reaching the shores of Malabu Beach will, in all probability, originate from leases within the Santa Barbara Channel and, for this reason, was considered under the Santa Barbara heading.
- [62] Three days is not critical but was selected as a reasonable time for a spill to stabilize. Recent studies indicate that within the first 20-24 hours approximately 50 percent of a crude oil spill will disappear either due to evaporation or

dissolving. This will vary widely depending on type of oil, temperature, sea state, etc. However, 50 percent appears to be a good average.

- [63] Paragraph 5 leads into paragraph 6 and should precede it as it does.
- [64] The other areas in this section included the "given a spill occurs" probability based upon Table 2, POCS Reference Paper VI.
- [65] This paragraph discusses the predictions of the oil spill model. Oil spill containment equipment was not a variable put into the spill model, but is discussed in many sections.
- [66] The model does not suggest that the same locality has a probability of being hit every other year, but neither does it preclude that possibility.

Further, the next paragraph (2) summarizes the more probable event.
- [67] As defined previously, biological recovery could take 5 years and "community recovery" could take 10 years. These data were taken from goose neck barnacle maturity rates and mussel succession studies in central California. Other associations within the intertidal would require less time.
- [68] Comment noted.
- [69] Comment noted. Appropriate action has been taken.
- [70] Comment noted. ES changed as suggested.
- [71] Phrase has been deleted.
- [72] This paragraph has been modified.
- [73] An oil spill is considered a "catastrophic" event in many aspects even though it may not be from the point of view of nekton.
- [74] Paragraph has been modified.
- [75] Statements have been updated.
- [76] Paragraph has been revised.

- [77] The designation of extreme along some coastal areas is justified. Many rare and endangered species are found in already highly impacted areas. Any further stress, OCS oil resource development for example, could have severe impacts upon these species.
- [78] The word "importance" has replaced the word "significance".
- [79] See Responses to Shell Oil, Office of Environmental Affairs, No. [7].
- [80] Comment noted.
- [81] ES corrected.
- [82] Table II.F.6-1 list of all endangered, threatened and rare species found in central and southern California and Baja. Table III.C.1.f-1 list the species that could possibly be impacted by OCS oil resource development. However, some changes have been made to both tables.
- [83-84] ES changed to reflect comment.
- [85] Comment noted.
- [86] The oil spill probabilities for each island are listed in Table III.C.1.i-1. The following sentence was inserted in the text: "Additionally, the most important pinniped communities are on San Miguel, where the probability of an oil contact is fairly low, 6 percent."
- [87] The reduction in quantities referred to does not significantly affect the values generated by the oil spill model. Also, these leases could be offered again at a later date.
- [88] Contract and "in house" studies by BLM have shown large numbers of these animals utilize Tanner and Cortes Banks for feeding. This fact underscores the great productivity of the banks - that these pinnipeds would travel such distances to feed when fish are already abundant around the islands.
- [89] We believe the intent of and methods used in this paragraph are clear and correct. The purpose is to show the worst-case probabilities of oil reaching the areas listed as "Biologically Sensitive Areas". The conclusion is that, even if high spill rates are assumed, the resources are in a low-risk category.

- [90] The values represent all flora and fauna in each area. That is, in the Ecological Reserves in the Bight, Sale 48 impacts are anticipated to injure, destroy or displace 5 percent or less of all the marine plants and animals found in all the Ecological Reserves over the life of the project. Such losses would not be equally divided between each Ecological Reserve. The values are based upon the expected number of spills reaching the areas, the time taken to reach the areas, the marine communities in the areas, and an analysis of past impacts upon similar communities.
- [91] This ES is not an analysis of trawling impacts but of the potential impacts attributable to the proposed project, that of oil and gas leasing and development. The proper place to discuss the existing situation, ie. any impacts caused by other actions, is in section II.G.1.f.iii. We do not feel that trawling has "obliterated all aboriginal sites in the Channel Islands area". Our reasons for this are stated in a section which we have added to Section II.G.1.f.iii.
- [92] Though somewhat descriptive, this section discusses the capabilities, limitations, and operational techniques of remote sensing surveys in terms of their ability to detect submerged cultural resources. This ability and limitation has a direct bearing on the potential for impacts on cultural resources. While the argument to move it to Chapter II has merit, we feel it is best left where it is, in Chapter III.
- [93] Appropriate modifications have been made.
- [94] Error corrected.
- [95] The 32 trips per week you cite are for boats serving drillships and pipe-lay barges for the Santa Barbara Channel only. It does not consider operating platforms or survey boats and it refers only to proposed Sale No. 48. The referenced section discusses the potential impact all bases of activity attributable to the proposal on all areas within the proposed sale area including, but not limited to, the Santa Barbara Channel.
- [96] The table explanation has been rephrased. The blue line on Visual No. 4 defines the "high density recreational boating areas" and a footnote has been added to the text clarifying this (see Figure A-22 in POCS Reference Paper No. VI). A paragraph has been added concerning the extent of boating area affected by a single spill.
- [97] Due to recent action by the NOAA Office of Marine and Estrarine Sanctuaries, this entire section has been modified.

- [98] The South Coast Air Basin figures are projected baseline emissions.
- [99] A paragraph has been added to this section which bases it upon the quantified data in the Oil Spill Model. It is, as it states, a discussion, "in general terms...(of)...the activities and...effects which may (emphasis added) occur at the shoreline..."
- [100] See response [99] above.
- [101] These statistics may exist and reduction of acreage yields could perhaps be determined. However, since the impact of proposed OCS activity would have a minor impact on air quality in inland agricultural areas, such an analysis was not deemed necessary for this statement.
- [102] Reference Paper No. VI is the source of the figures presented in Table III.E.3-1. It is true that most nest sites are above the surf splash zone and this point has been added to the text.
- [103] A paragraph incorporating the total probabilities of oil hitting the shoreline segments in which nesting areas are adjacently located has been added to the text.
- [104-
105] ES changed to reflect comments.
- [106-
107] Comments noted.
- [108] ES changed to reflect comment.
- [109] Proposed Sale No. 48 increases are shown in Tables III.E.10-1, 2 and 3 along with percentage changes.
- [110] Comment noted.
- [111] Qualifying sentences added.
- [112] Clarified.
- [113] See response [139] below. Sentence has been rewritten.

- [114] It was assumed that 20 percent of the population is of school age, K through 12.
- [115] Since both counties are at capacity for water supplies and rapidly expanding, a 1 percent increase is significant and 3 percent major.
- [116] Simple multiplier analysis cannot incorporate all the economic induced effects the way the Harris Model does. The result, therefore, would not be comparable.
- [117] Considering the impact of Proposition 13, a 3.16 percent deficit is major.
- [118] As Table II.G.2.d-6 refers to hospitals, the reference is correct.
- [119] Reference to CEIP funds has been added.
- [120] Comment noted
- [121] We believe that this topic is adequately described in the ES.
- [122] Comment noted.
- [123] All development plans must be approved by the USGS and must have CZM consistency certification even without this stipulation. Disagreement will be resolved through available channels.
- [124] Comment noted.
- [125] The area included in Sale 48 is so broad that the amounts of sewage, runoff and seeps are highly variable, running from fairly large amounts of sewage near San Pedro and large amounts of seeps near Coal Oil Point to relatively pristine near Cortes Banks and little land runoff.
- [126] The 29 expected spills for the Santa Barbara Channel area was obtained by including the expected number of small (greater than 50 but less than 1,000 bbl.) spills with the expected number of large spills. This cumulative number was 18.8 for the Santa Barbara Channel and 14.6 for the San Pedro area. Their effects probably would be associated with the rather unknown chronic impacts mentioned briefly in the sections.

The estimate was included in the kelp impact section on p. 920 of the DES. However, it was not included in some other sections and has been added to the benthos and kelp sections when discussing the Santa Barbara area discussion.

- [127] Oil cleanup equipment will reduce the impacts. Mitigating measures are discussed under Section IV.
- [128] This paragraph mentions temporary food chain magnification, referring to possible harm caused to predators ingesting copepods containing concentrations of oil and does not refer to storage of hydrocarbons in tissues for periods sufficient to cause food chain buildups.
- [129] The location of so many tracts adjacent to the ASBS, adjacent to the northern channel islands is alone sufficient to justify this paragraph in the ES.
- [130] This section has been reworded to reflect these points.
- [131] This section has been rewritten to reflect the above comment.
- [132] There is no statement on page 1271 of the DES related to this comment.
- [133] Sentence has been clarified.
- [134] Birth, death and crime statistics are customarily shown in incidences per 100,000. Crime statistics are shown in POCS Reference Paper No.II.
- [135] The questions's relationship to paragraph 4 is unclear.
- [136] It is felt that the paragraph is appropriate as written.
- [137] Comments have been incorporated as suggested.
- [138] Statement has been added.
- [139] BLM has used estimates provided by the USGS for estimated terminal, production and operations facilities needs, as well as reserve estimates, which are the figures used in these sections. USGS has not revised its estimates for the Tanner-Cortes area.
- [140] ES changed to reflect comment.
- [141] You are correct if the word "relatively" is not included.
- [142] Comment noted.
- [143-144] ES changed to reflect comments.
- [145] See response [139] above.

- [146- ES changed to reflect comment.
147]
- [148] Several of these alternatives consist of removing just particular troublesome tracts, such as Alternatives 11 and 12. A further alternative, suggested by the State of California, has been added.
- [149] Comment noted.
- [150] Appropriately changed. Where tanker spills occur depends upon where the oil is produced, stored, loaded/offloaded and transported. In this scenario, many of these factors would be similar to those of platforms and thus, the spills won't necessarily occur far from land.
- [151] Clarified.
- [152] Text changed to include a total of 3.1 spills.



BOARD OF SUPERVISORS
COUNTY OF SAN DIEGO

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ROGER HEDGECK
SUPERVISOR, THIRD DISTRICT

October 30, 1978

Mr. Harold Martin
Manager, Pacific OCS Office
U.S. Department of the Interior
Bureau of Land Management
300 No. Los Angeles Street, Room 7127
Los Angeles, CA 90012

Dear Mr. Martin:

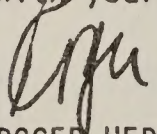
Re: Comments on Draft EIS on Lease Sale No. 48

In response to the Draft Environmental Impact Statement for Lease Sale No. 48, San Diego County is submitting the following material:

- (1) Resolution from the San Diego County Board of Supervisors which opposes offering the Dana Point-San Diego tracts for leasing;
- (2) The testimony I am presenting on behalf of the County at the October 31 public hearing; and testimony which is being presented at that hearing by the San Diego County Air Pollution Control Officer.
- (3) A detailed report on the treatment of air pollution in the Draft EIS which will be submitted to the Bureau of Land Management by November 10, 1978;
- (4) Concurrence with the CPO report analyzing other portions of the Draft EIS; and
- (5) Miscellaneous comments prepared by San Diego County staff on remaining points in the Draft EIS which were not covered elsewhere.

Items 3 and 4 are being submitted to your office under separate cover.

Please feel free to contact the San Diego County Integrated Planning Office (236-4740) or the San Diego County Air Pollution Control District (565-3947) if there are any questions on these items. We look forward to cooperating with your office in finalizing the Environmental Impact Statement.


ROGER HEDGECK
Supervisor, Third District
County of San Diego

MISCELLANEOUS ADDITIONAL COMMENTS ON THE DRAFT EIS
ON LEASE SALE NO. 48 **

General Comments

- [1] 1. The bulk and style of the Draft EIS precludes thorough review by interested citizens. As we have previously requested, a summary of the environmental impacts on San Diego County would be extremely helpful. The summaries of sections of Chapter III do not meet this objective.
- [2] 2. The charts and tables throughout the document do not assist the reader in understanding the impacts. The requirement to refer back to the text to understand the charts is not an easy style to review. Better labeling of charts would improve the overall readability of the document.

Specific Comments

- [3] 1. The assumption that an offshore storage and treatment facility would be used for oil found in the Dana Point-San Diego tracts (page 4) is questionable. Discussions with representatives of the oil industry and local governments have indicated that the utilization of such offshore facilities is not generally favored by any parties. According to the State Office of Planning and Research OCS Project Task Force Report*, separation and treatment facilities "are generally located onshore because of space requirements, easier pipeline transport of gas to the consumer, adequate crude storage capacity, and other reasons. From economic and environmental standpoints, onshore siting of these facilities will continue to be preferable for all but the most distant tracts." The placement of a storage and treatment facility offshore in the Santa Barbara Channel was contrary to the preferences of industry and government, and therefore the Department of Interior should not be projecting the use of such facilities.

These comments apply also to the other two offshore storage and treatment plants proposed in the Draft EIS (page 9).

- [4] 2. The statement that "subsea completions may be used in some marginal fields" (page 5) may cause concern. The Dana Point-San Diego tracts have the lowest resource estimates by acreage in the entire sale area. Therefore, it could very possibly be a marginal field. Although subsea completions mitigate visual impacts, the relative safety of subsea completions must be carefully considered prior to utilization. Because of the proximity of these tracts to the shore, the safest technology would be mandatory to minimize the potential for an oil spill and to minimize time delay in discovering any problems. The state of the art of upright platforms and subsea completions must be carefully analyzed to assure the use of the safest technology for nearshore tracts.

* p. 694, Offshore Oil and Gas Development: Southern California, State of California Office of Planning & Research, October, 1977.

** Prepared by the staff of the Integrated Planning Office, County of San Diego, 1600 Pacific Highway, San Diego, CA 92101

- [5] 3. The conclusion that "California's refinery capacity would be adequate to process the production of crude from this proposed sale" (page 20) is not supported by the facts which are presented earlier in this paragraph:

- The West Coast is expected to have an oversupply of approximately 600,000 barrels a day by 1980 and 900,000 barrels a day by 1982.
- The SOHIO pipeline has not yet been approved. The Draft EIS acknowledges that "perhaps" surplus oil will be tankered through the Panama Canal.
- Alaskan oil has high viscosity and sulfur content and only limited quantities can presently be refined in California.

Additional facts should be added to this paragraph:

- It is anticipated that OCS oil off California will also have a high sulfur content and therefore not appropriate for backing out imported oil which is refined in California.
- Even the oil field presently being developed in the Santa Barbara Channel (Hondo) does not have an established destination for the oil.

These facts contradict the BLM conclusion that California refinery capacity is adequate for OCS production. This EIS should not be finalized without a thorough discussion of the destination of oil and gas which would be produced from Lease Sale No. 48, and the cumulative impact of anticipated oil transportation schemes on southern California.

- [6] 4. The discussion of the lease sale process (pp 21-25) has left out a step between #7 and #8 (page 25): the preparation of the Secretarial Information Document. This document, which will analyze the Secretary's options with regard to the lease sale, should be made available to the public.
- [7] 5. As indicated in the July 11, 1978 letter to BLM (comment (111)12), the Draft EIS should justify its comment that spilled oil is unlikely to penetrate far into Mission Bay. This elaboration should consider the possibility of a major spill off the Dana Point-San Diego area.
- [8] 6. On page 1116, it is stated that the Dana Point-San Diego area "has the fourth highest projected resource value for this proposed sale." This statement is misleading because by acreage, this area has the lowest estimates. It may be higher than the areas simply because the Dana Point and San Diego area estimates were aggregated together, even though they are not contiguous. When the size of the area is considered, the Dana Point-San Diego area has the lowest estimates in Lease Sale No. 48.
- [9] 7. Also on page 1116, it is stated that "no onshore facilities are projected for (the Dana Point-San Diego) area as a result of the proposed action." Similar dismissals on onshore impacts in San Diego County occur on pages 1126, 1137, and others. Yet on another page, the possibility of a gas

processing plant in San Diego County is acknowledged. It appears that for the sake of simplicity and/or to eliminate the need to consider consistency with State and local government land use plans, the BLM is minimizing the actual onshore impacts which economic forces would dictate. This includes consideration of a gas processing facility and an onshore, rather than offshore, storage and treatment facility in San Diego County.

- [10] 8. As indicated in the July 11, 1978 letter to BLM (Comment (III) 14), it is inappropriate to state that there is "no net loss to society" from an oil spill on the beach (references now found on pages 1155 and 1161). Economic losses to beach-oriented businesses would clearly be adversely affected. Equally important, the quality of life is diminished for residents in the entire region by the knowledge of the despoiled beaches. In all fairness, the Draft EIS should acknowledge that an oil spill is obviously considered an adverse impact by the majority of residents of a coastal area.
- [11] 9. In our July 11 letter (comment (IV) 4), we requested notification of State and local governments when waivers of OCS orders have been requested. Your response, that the USGS does not have the authority to require operators to coordinate with State and local government, is not satisfactory. Authority is not needed to administratively agree with the Army Corps of Engineers that notification be given to a reasonable mailing list of interested and affected parties. This is an informational request only and would not imply any increased authority of State or local government, but would be a step toward a more open and communicative relationship.
- [12] 10. On page 1261, a paragraph discusses "clean air standards." It is stated that "a proposal for implementing the clean air requirements of the pending legislation is now being prepared." Although the legislation has passed, the lawsuit over the role of EPA in monitoring emissions in the Santa Barbara Channel is still pending. Lease Sale No. 48 should not proceed until air quality regulations are in force. It is our preference that EPA be given the lead role in establishing and enforcing air quality regulations.
- [13] 11. The section on the alternatives to the proposed actions does not adequately discuss the pros and cons of the various alternatives. The section entitled "delete Dana Point-San Diego area" (pp. 1315-1318) merely recites statistics without explaining their significance. For example, on page 1315, the air pollution emissions from the San Diego-Dana Point tracts are related to the South Coast Air Basin, despite the fact that the primary impact of leasing the Dana Point-San Diego tracts would be felt in the San Diego Air Basin. The impact of additional air pollution from these tracts on San Diego's ability to meet federal air pollution standards, and the cost to San Diegans to offset these emissions from other sources, should be mentioned. This section should discuss the value of present coastal resources, including tourism, recreation, fishing, military uses, etc. San Diego County would like to participate in rewriting this section for the Final EIS.

- [14] 12. On page 1562, the listing of organizations contributing comments on Chapters III through VIII erroneously lists: "County of San Diego, Environmental Quality Division." That should be corrected to: "City of San Diego, Environmental Quality Division."
- [15] 13. Appendix F should be eliminated. The matrix presented in Appendix F is not appropriate to summarize impacts.

The extremely important factors of air quality impact and geological hazards are not even included on the chart. Air quality impacts not only impinge on aesthetics and recreation, which are on the list, but more importantly on the physical and economic health of the onshore population.

The concept of equally weighing all factors is nonsense. A significant impact in one aspect (conflict with military uses; air quality) cannot be mitigated by being averaged with impacts on other environmental issues. The categories themselves are arbitrary.

Finally, the ratings must be questioned. The aesthetic impact of drilling 7.5 to 24.5 miles from shore, in a frontier area nationally known for its attractive environment, ranks "moderate to low impact" according to this scale. All of these tracts are visible from shore, and the imposition of oil rigs onto the undeveloped ocean views cannot be dismissed as "moderate to low." This suggests an unwillingness of the BLM to acknowledge the adverse effects of a lease sale.

Responses To:

County of San Diego, Board of Supervisors
Attachment 5

- [1] It is a Department of the Interior policy not to write executive summaries of Environmental Impact Statements. A summary of impacts for the Dana Point - San Diego tracts is presented in the Alternative VIII.A.3.
- [2] Explanatory notes have been added to several tables and charts in response to the Draft ES review comments.
- [3] Although it is true that offshore facilities are not preferred by private industry, it has become the only alternative available to industry to develop OCS tracts where local or State entities have refused to permit onshore sites. Given the reluctance of San Diego to accommodate OCS development, it can be reasonably assumed that onshore treatment facilities would not be approved onshore.
- [4] Section 208 of the OCS Lands Act Amendments of 1978 (Section 21 of the OCS Lands Act) requires the use of the best available and safest technology which the Secretary of the Interior determines to be economically feasible.
- [5] The section of the ES referred to in this comment, Section I.B, Leasing Process, is an historical account of tract selection and prelease actions which will take place during the leasing process. Changes in that section would be inappropriate since those were the determinations made at the time of tract selection in January of 1977. However, it is still felt that proposed Sale No. 48 crude would back out, or replace, foreign imports. It has been assumed throughout this ES that the import of low sulfur light crude would continue at the current rate but that other foreign imports would be backed out and that future increases in imports which would have occurred without OCS development would also be backed out. Furthermore, continuing retrofit operations of refineries will enable California refineries to process proposed Sale No. 48 crude when it comes on line in the mid-1980's. The lower transportation costs of proposed Sale No. 48 crude to California refineries will make the oil particularly attractive compared to Alaskan or foreign crudes.
- [6] Change made as suggested.
- [7] Since the entrance to Mission Bay is narrow, it could be protected from any possible oil spills with booms and skimmers. The possibility of a major oil spill in the Dana

Point - San Diego tracts is remote. However, it has been analyzed in the oil spill risk analysis, Section III.A.7, and throughout the impact statement.

- [8] ..."but the lowest per acre." has been added to the sentence.
- [9] An onshore processing facility is a possibility. However, it is improbable and certainly not "most probable" that an onshore facility in San Diego would be approved by county or local government. An alternative development scenario has therefore been addressed to discuss onshore facilities in San Diego, Section III.F.7.
- [10] Changes made as suggested.
- [11] The request to coordinate with State and local government on waivers of OCS Orders is an operational matter and will not change the environmental impact of this proposal.
- [12] Comment noted.
- [13] This section has been rewritten to address the air quality comment. The value of coastal resources is discussed in Chapter II, Description of the Environment.
- [14] Correction made.
- [15] Appendix F summarizes only the impacts of permanent structures, i.e. platforms and pipelines, on each tract and assumes that a platform is located in the center of each tract. It does not represent a summary of all the impacts. Chapter III, Environmental Impact of the Proposed Sale, discussed all the impacts.

The aesthetic impact is reduced with distance. That fact is shown in the rating system.



November 7, 1978

Mr. Frank Gregg, Director
Bureau of Land Management
Pacific OCS Office
Los Angeles, California

Dear Mr. Gregg:

The City of Laguna Beach presents the following recommendations to the Department of Interior, Bureau of Land Management, on the Draft Environmental Statement on proposed OCS Lease Sale #48. These recommendations are preliminary and are directed towards BLM's revision of the DES to include analysis of these areas of concern.

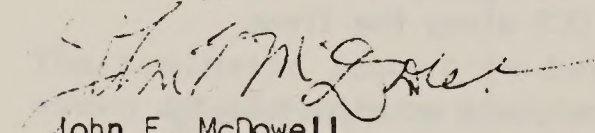
- [1] 1. The City of Laguna Beach recommends that BLM consider the deletion of tracts bordering state tidelands. Development of tracts adjacent to State Sanctuaries could result in drainage of state-owned petroleum reserves.
- [2] 2. Congestion of coastal waters by drilling structures, production platforms and ships/boats servicing offshore facilities poses a potential threat to vessel traffic, due to the possibility of collision. An accident of this type could result in the pollution of our marine and shoreline environment. Laguna Beach supports the adoption of the Comptroller General's May 2, 1978 recommendations to the U. S. Congress:
 - A. Authorize the Coast Guard to designate obstruction-free shipping routes on the OCS along the lines of IMCO recommendations.
 - B. Require the Coast Guard to relocate or adjust designated shipping routes when necessary to the exploration and development of oil and gas deposits.
 - C. Authorize the Coast Guard to veto decisions made by the Corps which would obstruct designating shipping routes until the Coast Guard can relocate or adjust the shipping routes and provide adequate notification to all concerned parties.

November 7, 1978

- [3] 3. Serious air quality protection problems can result from OCS operations offshore, in an attempt to mitigate air and water pollution from vapor to potential oil spills.
- [4] 4. All ships/boats servicing offshore oil facilities and all transport vessels should be required to use a low sulfur bunker oil.
- [5] 5. High pressure hydro equipment should not be used for cleaning, as the potential exists for puncturing the pipelines carrying oil from the platforms to shore-based facilities. Brushes developed by the industry for cleaning ship bottoms should be considered as an alternative.
- [6] 6. The State's oil spill contingency plan is not adequate and merits review:
 - A. The plan does not provide adequate job descriptions, specifically in the area of volunteer help. The plan does not ascribe authorities and responsibilities for local plan implementation.
 - B. The plan does not specify the role of local government participation and responsibility with regard to protection of City/County beaches and harbors.
 - C. The plan does not provide for the placement of emergency clean-up equipment at either Newport and/or Dana Point Harbors. Quick response time is a key factor in the protection of our marine and coastal environments.

Your consideration of these recommendations will allow responsible development of energy resources in the OCS and protect the marine, coastal and atmospheric environment from further degradation.

Sincerely,


John E. McDowell
Mayor

jemcd:mb:jr

Responses To:

Mayor John E. McDowell of the City of Laguna Beach

- [1] The deletion of partial tracts bordering State tidelands is discussed in Section VIII.A.1 of the ES.
- [2] BLM is continuing its coordination with the U.S. Coast Guard and the U.S. Army Corps of Engineers with regard to vessel safety. The BLM is dedicated to vessel safety and several alternatives to increase safety are discussed in Sections VIII.A.11 and 12 of the ES.
- [3-4] The Department of the Interior is currently in the process of developing air quality regulations for the OCS as required by Section 5(a)(8) of the OCS Lands Act as amended.
- [5] Section 21(b) of the OCS Lands Act as amended require the Secretary of the Interior to require the use of the best available and safest technologies which the Secretary determines to be economically achievable.
- [6] Cleanup equipment is required to be available at key locations determined by the geographic location of OCS operations. Also, containment booms are required on each platform or drilling vessel.

COUNTY OF SAN DIEGO



Integrated Planning Office

PAUL C. ZUCKER
Assistant Chief
Administrative Officer
Integrated Planning

County Administration Center, 1600 Pacific Highway, San Diego, California 92101 ... Telephone: 236-4597

November 8, 1978

Mr. Harold Martin
Manager, Pacific OCS Office
U.S. Department of the Interior
Bureau of Land Management
300 North Los Angeles Street, Room 7127
Los Angeles, California 90012

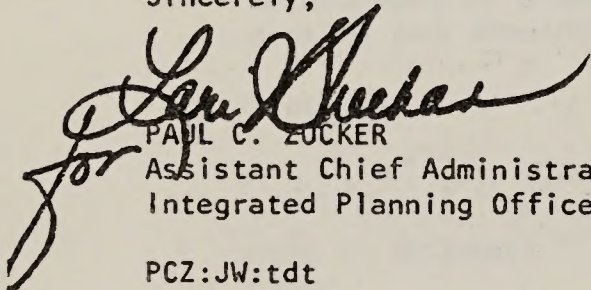
RE: Comments on Draft EIS on Lease Sale No. 48

Dear Mr. Martin:

Enclosed is the final report prepared jointly by the County of San Diego Integrated Planning Office and the Air Pollution Control District on the air pollution issues in the Draft EIS. This report was referenced (Item #3) in the County's October 30, 1978 letter of transmittal of the other County comments on the Draft EIS.

We look forward to working together on the Final Environmental Impact Statement.

Sincerely,


for
PAUL C. ZUCKER
Assistant Chief Administrative Officer
Integrated Planning Office

PCZ:JW:tdt
Enclosure

cc: Richard Sommerville, APCD
Heather Ross, Office of the Secretary
City of San Diego, Attn: Jim Gleason
CPO, Attn: Jack Koerper

COMMENTS ON THE AIR POLLUTION ISSUES IN
THE DRAFT ENVIRONMENTAL IMPACT STATEMENT ON
LEASE SALE NO. 48

Prepared Jointly by:

Integrated Planning Office
County of San Diego
1600 Pacific Highway
San Diego, CA 92101

Air Pollution Control District
9150 Chesapeake Drive
San Diego, CA 92123

Research Supplied By:

Form & Substance, Inc.
875 Westlake Blvd., Suite 212
Westlake Village, CA 91361

Environmental Resources Group
6380 Wilshire Blvd., Suite 804
Los Angeles, CA 90048

November 8, 1978

I. AIR EMISSIONS ASSESSMENT

Introduction

Recent proposed increases in offshore development combined with increased petroleum importation levels could have significant environmental implications for Southern California. Of particular concern to San Diego are the air quality impacts of proposed Outer Continental Shelf (OCS) development on air basins which already do not meet ambient air quality standards. The purpose of this report is to review and comment on the air emission assessment prepared by the Bureau of Land Management (BLM) as part of their Draft Environmental Impact Statement (DEIS) on OCS Lease Sale No. 48. A summary of this report's findings was presented as testimony by Mr. Richard Sommerville of the County of San Diego Air Pollution Control District (SDAPCD) at the Federal Government's official public hearing on Lease Sale No. 48, held in San Diego on October 31 and November 1, 1978.

Developing an emission inventory that encompasses all OCS related activities requires the integration of large amounts of data. Given the uncertainties involved, it is an extremely difficult task. The mix of oil and gas, where and when it will be found and in what quantities, the means of extraction and transport to shore, where and how it will be processed and finally, how long it will last, can be predicted initially only within broad limits. These uncertainties will only become clearer as offshore development proceeds from lease sale through production. Therefore, in developing an OCS emissions inventory a clear definition of assumptions is critical in defining the scope of the inventory.

The emission inventory in the DEIS attempts to characterize OCS Sale 48 emissions using a broad brush approach which relies on highly simplified assumptions with regard to production and consequent emission levels. The DEIS fails to provide a detailed, accurate assessment and definition of all operations and emissions expected with OCS Lease Sale 48. More specifically, it is not clear how much of the DEIS data was derived. Scenarios are not defined. Assumptions are not listed. There is little or no justification for much of the data, and in several cases, DEIS data are misleading and erroneous.

The DEIS attempts to qualify the absence of substantive support data by stating on page 1021 (Volume 2) that the "rationale for the choice of emission factors, assumptions regarding the production scenarios, and methodology for calculating emissions is explained and tabulated in Air Quality Analysis of the Southern Bight in Relation to Potential Impact of Offshore Oil and Gas Development," prepared by Aerovironment in 1977. The Aerovironment report, however, does not provide the data needed to support the emission estimates in the DEIS. It too fails to support its emission estimates with detailed assumptions regarding operational levels by geographic zone and time period. Consequently, it is not possible to determine how the data were derived or in what context it can be used.

Briefly, the DEIS emission assessment is considered inadequate due to the:

- ° Inadequate description and delineation of all emission producing activities expected with each phase of OCS development.

- ° Inadequate definition and justification of highly simplified "tankering" scenarios used to represent total emissions expected from OCS Sale No. 48 sources.
- ° Lack of a perspective and accurate context in which emissions can be assessed.
- ° Failure to provide information to support findings and the outdated report (Aerovironment) upon which much of the findings are based.

The following sections look at each of the above criticisms in more detail. Since the DEIS' air emission analysis is in fact merely an abbreviated presentation of the Aerovironment report, the following comments apply to both studies.

[1] Description and Delineation of Emissions

The emission analysis fails to adequately describe and delineate all emission producing activities expected with each phase of OCS development. Both the Aerovironment and the DEIS analyses calculate expected emissions for 1986, when production is assumed to peak for all tracts. This simplified assumption is not likely to be realized since production will not peak for all areas at the same time.

According to a recent study prepared by ERG for the SDAPCD, Santa Barbara Channel and San Pedro Bay lease areas were assumed to peak about 1988. The other four areas - Santa Rosa Island, Santa Barbara Island, Tanner Cortez Banks, San Diego-Dana Point - were estimated to peak in approximately 1991, around the fifth year of production (ERG, 1978). Figure 1 shows the production curves estimated by ERG for each of the six lease areas based on a medium estimate of production.

Both the Aerovironment report and the DEIS do not examine the emissions associated with the various phases of development (exploration, development, production). There is no discussion of types of equipment found on a production platform or operations associated with each lease sale area for representative time periods. The DEIS assumes the emissions will peak with production in 1986. As just mentioned, the generalized estimates presented for the 1986 year cannot be considered representative or likely. Again, according to ERG, emissions will be highest during the initial stages of production while drilling is still occurring (ERG, 1978).

Potential emissions associated with emplacing, operating, and maintaining the platform and its crew should be identified and evaluated. Since different phases of operation have their distinct emissions with varying rates of durations, emissions from each phase (exploration, development, and production) should be examined separately.

The exploration phase inventory should include identification of pollutants associated with exploration vessel movements, test drillings, any leakage or evaporative losses from the exploration activities, and logistical support required by the drilling ships and drilling operations. These emissions could be significant, as illustrated in Tables 1 and 2.

The development phase inventory should include emissions associated with large scale construction activity and drilling of production wells. Pollutants emitted from platform construction, construction equipment, and workers' vehicles should be identified and quantified.

The production phase inventory should include identification of pollutants associated with operational drilling and pumping, emissions from any gasoline or diesel powered engines on the platform, from gas turbine electric generators, from any storage facility, from gas burners, from any treatment or extraction activity on the platform, from supporting platform activities, from flare stacks and from leakage associated with production. As an example, Tables 3 through 11 summarize emissions expected during the development/production phase and provide a basis for estimating emissions for selected lease areas. No such definition was provided in either the DEIS or Environment studies. Consequently, it is not clear how summary estimates were derived.

Only after a catalogue of types of expected emissions are identified and compiled can likely summary operational scenarios be developed. The DEIS and Aerovironment report fail to detail emissions in their scenarios. The data presented is non-specific and not supported with any of the data just mentioned or illustrated in Tables 1 through 11.

[2] "Tankering" Scenarios

Two highly simplified "tankering" scenarios are used to represent total emissions expected from OCS Sale No. 48 sources. The scenarios (referred to as "Normal Tankering Scenario" and "100% Tankering Scenario") are presented in the DEIS with no definition of what they are supposed to represent. The Aerovironment report provides a little more information on the scenarios, but fails to list the assumptions or justification used in their derivation. For instance, no mention is made of what year or what phase of development the scenarios represent (after a considerable amount of effort, it turns out they represent the 1986 peak year for all tracts). Little information is provided for each of the lease tract areas; and the data that is provided are not supported by any assumptions or references.

Tanker loading represents the highest single source of hydrocarbon emissions associated with OCS activities. Table 9 presents a worst-case tanker emission scenario. Other emission activities associated with a tanker visit include tanker fuel consumption, tanker ballasting and tanker purging. The latter two activities, as shown in Table 9, are potentially large sources in hydrocarbon emissions. Both the DEIS and Aerovironment analyses failed to include these activities in their emission scenarios. Further, no discussion of expected tanker pollution abatement technology was presented. Segregating ballast systems and flue gas inerting systems could significantly lower future tanker emissions in the coastal zone and may be required of tankers calling at Southern California ports.

DEIS and Aerovironment emission estimates for both tankering scenarios do not provide a perspective and accurate context in which the emissions can be assessed. All emissions are presented on a per-hour basis. The reader has no notion of emission duration, rates of occurrence, mix of activities likely to occur at a given time, etc. Emissions on an annual and maximum daily basis should be presented. Annual emissions should provide a perspective of total

continuous, intermittent and random emissions expected over a year for each of the lease sale areas and for several representative development time periods. Maximum daily emissions should provide a more detailed picture of a maximum operational day which may include a mix of several operations as shown in Tables 3 through 11. Again, the mix would vary according to geographical zone and phase of development.

Both the DEIS and Aerovironment analyses fail to provide a context in which calculated emissions can be properly assessed. Table III D.1.a-1 in the DEIS attempts to do so by comparing the tankering scenario emissions with emissions from the South Coast Air Basin. No attempt, however, is made to distinguish what portion of the scenario emissions either occur or will impact the South Coast Air Basin. It appears that emissions from all OCS tracts are used in the comparison. This comparison is deceptive and ignores the fact that OCS Sale 48's impacts will be primarily at the local AQMD and APCD level, where Clean Air Act (CAA) requirements will apply. Because Section 176 of the CAA requires sanctions be levied against AQMD's that do not meet National Ambient Air Quality Standards by 1981, and further allows for the invalidation of federal permits that do not meet the requirements of the State Implementation Plan, OCS Sale 48 emissions could have serious legal implications at the county level. A more meaningful comparison could be provided if expected OCS emissions were differentiated by geographic zone and time period, and compared with the respective emissions from each of the coastal air basins likely to be impacted.

[3] BLM Emission Data Base

The DEIS emission analysis is based on a report (Aerovironment) that is 1 1/2 years old, which, like the DEIS, fails to provide much of the information needed to support its findings. No attempt was made in the DEIS to update or modify Aerovironment's findings, even though over the last two years increased sensitivity to OCS development both at the state and federal level has resulted in a number of studies on OCS development. As a result of these studies many of the emission factors and estimation techniques presented in the Aerovironment report are no longer valid.

For example, the estimation technique used in the past to estimate floating roof storage losses dramatically overstates emission losses. It is based on American Petroleum Institute [API Bulletin 2517 (1962)]. Advances in tank technology and recent research by the Chicago Bridge and Iron Company suggest that the original API formula equation overestimates emissions by 400 percent. Both the California Air Resources Board and the South Coast Air Quality Management District have accepted 25 percent of the original API formula as an appropriate estimate of floating roof standing losses (Port of Long Beach, 1977).

In addition to changes in emission factors and estimation techniques, related coastal project data have changed over the last year and should be reflected in the DEIS. For example, looking at the SOHIO project, BLM presents emission estimates from two 1977 studies. Both studies assume a 700,000 barrel/day delivery rate. Table III.D.1.c-3 in the DEIS which summarizes expected SOHIO emissions is ambiguous and unclear. Units are not presented (although they are mentioned in the text) and the two sets of estimates are not readily understandable. Further, they are out of date and no longer reflect the project. As of September 1977, the proposed rate was changed to 500,000 barrels/day and

certain other aspects of the project were modified. As of December 1977, a special supplement to the State's EIR was prepared updating all the emission estimates, including the California Air Resources Board (CARB) estimates, as cited in Table III.D.1.c-3.

Table 12 summarizes currently expected maximum daily emissions from the SOHIO project. SOHIO and possibly other proposed petroleum projects will be required to use tankers with segregated ballast and flue gas inerting systems. Consequently, the scenario presented in the DEIS (page 620) of three tankers ballasting and expelling hydrocarbon vapors simultaneously is not likely to occur and cannot be considered representative of SOHIO project emissions.

It should also be noted that an LNG terminal, should it be located in California, will probably not be sited in Oxnard. Point Conception has been suggested as the most recent potential site.

Conclusions

An emission analysis of OCS activities is an extremely difficult task given the uncertainties which cloud many aspects of OCS Sale 48. However, examination of the impacts of offshore oil development both in this country and abroad reveals that those communities which benefit most, or are damaged least, are those which make an effort to anticipate development, even before its true size of scale is fully known. To that end, the County of San Diego is preparing a series of reports on OCS development and its implications for the County.

The studies are part of a Coastal Energy Impact Planning (CEIP) project designed to provide information for the San Diego APCD to incorporate into its Air Quality Maintenance/Non-Attainment Plan (AQM/NAP). The first two studies have recently been completed. One compiles and develops an air emissions inventory for Southern California OCS development. The second develops OCS activity scenarios, with a focus on describing emission sources as a function of location and time during the 1980 to 2005 time period. The data in these studies will serve as input for subsequent air (computer modeling) and socio-economic impact studies, to be prepared as part of the CEIP project.

From the data already compiled, it is apparent that although uncertainties do exist, a better accounting of emissions expected with OCS Sale 48 can and should be presented in the DEIS. A more detailed and comprehensive approach should be taken which more accurately identifies potential onshore and offshore impacts in each of the Southern California coastal counties, for each of the major phases of development. The present study does not provide the comprehensive emissions inventory needed for an accurate impact assessment.

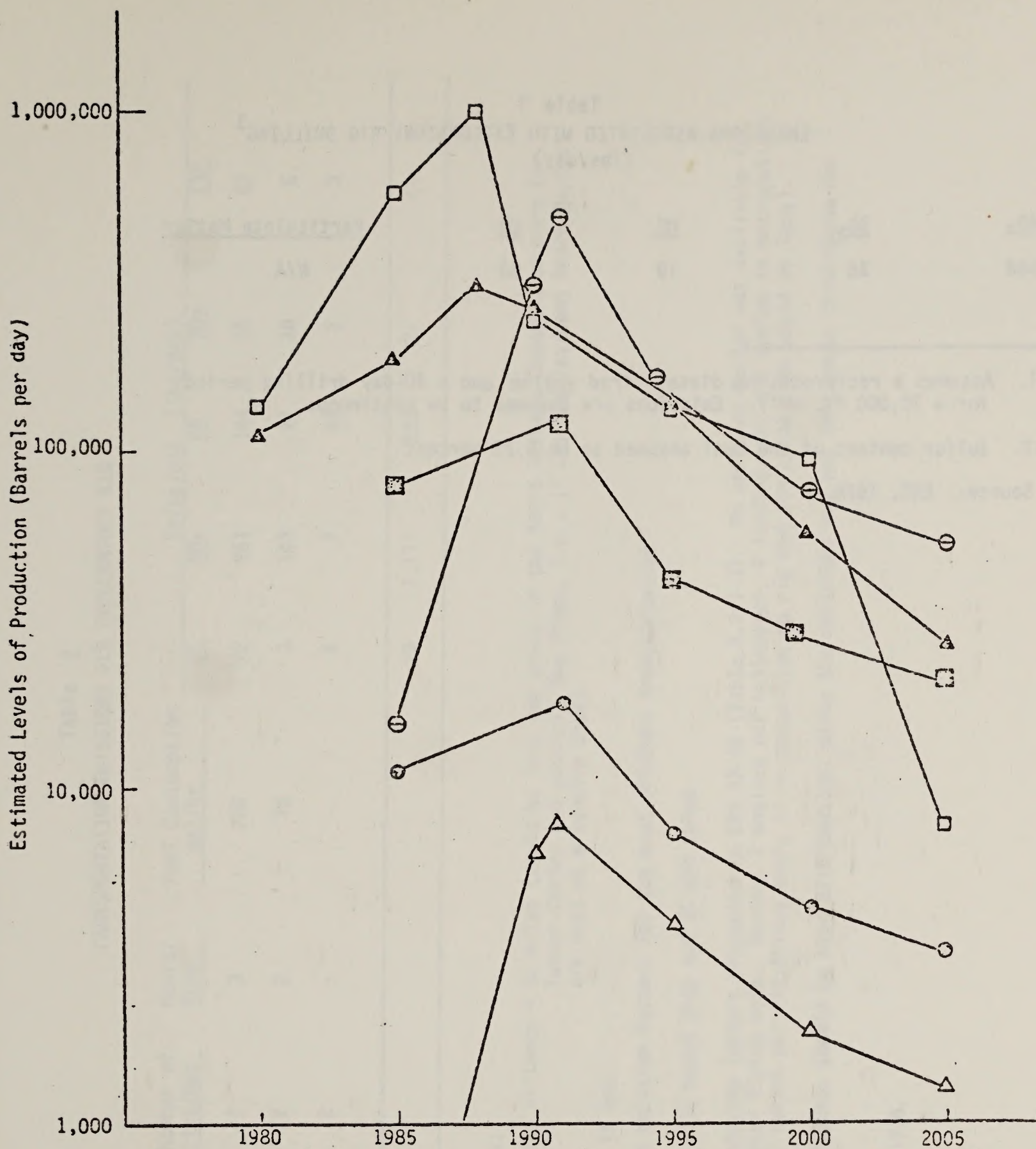


FIGURE 1 : Estimated Production Levels for Southern California OCS

Key: Tanner-Cortez Banks: ○ — ○ San Pedro Bay: □ — □
 Santa Barbara Channel: △ — △ Santa Barbara Island: ○ — ○
 Santa Rosa Island: □ — □ San Diego-Dana Point: △ — △

Table 1
EMISSIONS ASSOCIATED WITH EXPLORATORY RIG DRILLING¹
(lbs/day)

<u>NO_x</u>	<u>SO₂</u> ²	<u>HC</u>	<u>CO</u>	<u>Particulate Matter</u>
566	38	19	83	N/A

1. Assumes a reciprocating diesel-fired engine and a 30-day drilling period for a 10,000 ft. well. Emissions are assumed to be continuous.

2. Sulfur content of the fuel assumed to be 0.25 percent.

Source: ERG, 1978.

Table 2
TRANSPORTATION EMISSIONS PER EXPLORATORY RIG

Type	Number of Trips/Day	Hours/ Trip	Fuel Consumption gal/hr	Emissions (lbs/day)			
				HC	NOx	CO	TSP
Supply Boat ¹	2	3	280	22	961	144	42
Crew Boat ²	2	2	70	3	143	21	6
Helicopter ³	2	-	-	6	7	68	3
Total ⁴				29	1,111	233	51

1. Assumptions:

- round trip distance = 50 miles (could be less for areas in the Santa Barbara Channel, or more for Tanner-Cortez and possibly San Diego, i.e., if Los Angeles/Long Beach Harbors are used as a service base).
 - speed = 17 mph.
 - Based on emission factors for tug boat offshore transportation.
2. Assumes 50 mile round trip and 25 mph speed.
3. Based on emission factors presented in EPA AP-42 (Table 3.2.1-3). No emission factor was available for the helicopter flying mode. Assumes 2 engines per helicopter, 4 landing-take off cycles in metropolitan area, and 2 cycles per rig (since there is no congestion on rig and the cycle time would be less).
4. The total figures should be used with caution, since the emissions are not continuous throughout the day.

Source: ERG, 1978.

Table 3
EMISSIONS FOR A DEVELOPMENT/PRODUCTION MODULE
(SUMMARY)

Type	Pollutants (lbs/day)				
	HC	SO _x	NO _x	CO	Part.
Platform Installation ¹	606	1,545	22,780	3,649	1,028
First Year (drilling phase)					
Pipeline Installation ²	700	1,488	22,100	3,760	1,040
Development Drilling ³	38	76	1,132	166	N/A
Transportation ⁴					
Offshore	78	317	3,176	542	141
Vehicular	6	1	13	148	3
Fuel Storage	35	-	-	-	-
Total (First Year)	857	1,882	26,421	4,616	1,184
Second Year (development/production)					
Development Drilling and Transportation ^{3,4}	157	394	4,321	856	144
Production Power Generation ⁵	203	413	6,140	899	N/A
Production Supportive Activity ⁶	7	16	219	71	10
Oil and Gas Processing ⁷	2	143	44	10	4
Evaporative ⁷	1,335	-	-	-	-
Total (Second Year)	1,704	966	10,724	1,836	158
Third Year (production phase)					
Power Generation ⁵	203	413	6,140	899	N/A
Supportive Activities ⁸	42	16	219	71	10
Oil and Gas Processing ⁷	2	143	44	10	4
Evaporative ⁷	1,335	-	-	-	-
Total (Third Year)	1,582	572	6,403	980	14
Tanker Offshore Emissions ⁹ (lbs/visit)					
Loading	16,800	-	-	-	-
Fuel Consumption	57	1,477	926	10	416
Purging	2,237	-	-	-	-
Ballasting	1,934	-	-	-	-
Total ¹⁰ (Tanker Offshore Emissions)	21,028	1,477	926	10	416

Source: ERG, 1978.

1. See Table 4.
2. See Table 5.
3. See Table 6.
4. See Table 10.
5. See Table 7.
6. See Table 11. Assumes that the fuel storage for supporting development activity is also used by production supportive equipment.
7. See Table 8.
8. See Table 11. Assumes 35 lbs HC/day from fuel storage tank.
9. See Table 9.
10. Total emissions represent a low probability, worst-case day during which purging and ballasting (2 discretionary emissions) both occur.

Table 4

PLATFORM INSTALLATION EMISSIONS
(lb/day/platform)

Type of Equipment	Fuel Consumption gal/day	HC	SO ₂	NO _x	CO	Part
Derrick Barge ¹	3,330	115	103	1,645	314	100
Tug Boats ²	35,000	455	1,365	20,020	3,010	875
Supply Boat ³	1,680	22	65	961	144	42
Crew Boat ⁴	280	3	10	143	21	6
Helicopter ⁵	-	6	2	7	68	3
Vehicular Emissions ⁶ (onshore)	-	5	Neg.	4	92	2
Total		606	1,545	22,780	3,649	1,028

1787

1. Based on emission factors for miscellaneous construction equipment in EPA, AP-42 1976, section 3.2.7.
2. Assumes 7 tug boats.
3. Assumes 50-mile round trip and 17 mph speed.
4. Assumes 50-mile round trip and 25 mph speed.
5. Based on emission factors in EPA, AP-42. Assumes 2 engines/helicopter, 4 landing-take-off cycles in metropolitan area (2 trips), and 2 cycles for platform (less cycle time on platform). No emission factor for the helicopter flying mode was available.
6. Assumes 125 personnel and 20 mile trip/personnel/day.

Source: ERG, 1978.

MARINE PIPELINE INSTALLATION EMISSIONS
(lbs/day)

Equipment Type	Fuel Consumption gal/day	HC	SO ₂	NO _x	CO	Particulate Matter
Tugboats ¹	30,000	390	1,170	17,160	2,580	750
Lay Barge ²	1,700	59	53	840	160	52
Jet Barge ³	6,000	208	187	2,965	565	183
Supply Boat ⁴	1,680	22	65	961	144	42
Crew Boat ⁵	280	3	10	143	21	6
Helicopter ⁶	-	6	2	7	68	3
Vehicular ⁷	-	12	1	24	222	4
TOTAL		700	1,488	22,100	3,760	1,040

1. Assumes 6 tugboats.
2. Assumes emission factors for miscellaneous diesel-powered heavy duty construction equipment in EPA, AP-42, 1976.
3. Assumes emission factors for miscellaneous diesel-powered heavy duty construction equipment in EPA, AP-42, 1976.
4. Assumes 50-mile round trip and 17 mph speed.
5. Assumes 50-mile round trip and 25 mph speed.
6. Based on emission factors in EPA, AP-42. Assumes 2 engines/helicopter, 4 landing-take-off cycles in metropolitan area (2 trips), and 2 cycles for platform (less cycle time on platform). No emission factors for the helicopter flying mode was available.
7. Assumes 300 personnel and 20 mile trip/personnel/day.

Source: ERG, 1978.

Table 6
EMISSIONS ASSOCIATED WITH DEVELOPMENT DRILLING ON A PLATFORM¹

<u>Pollutant</u>	<u>Emissions lbs/day</u>
HC	38
SO ₂ ²	76
NO _x	1,132
CO	166
Particulate Matter	N/A

1. Assumes reciprocating diesel-fired engine and a 30-day active drilling period for the well. (Each rig drills 6 wells/year, which means each well takes 60 days to be drilled. It is assumed that the power required for drilling is used half of this time).

2. Sulfur content of the fuel assumed to be 0.25 percent.

Source: ERG, 1978.

Table 7
EMISSIONS ASSOCIATED WITH POWER GENERATION ON PLATFORM

Type	Pollutants (pounds/day)				
	HC	SO _x	NO _x	CO	Particulate Matter
Gas Compression ¹	86	175	2,600	381	N/A
Electricity Generation ²	75	152	2,260	331	N/A
Water Injection ²	42	86	1,280	187	N/A
TOTAL	203	413	6,140	899	

1. Assumes 15,000 BOD and a gas-to-oil ratio of 1,000 ft³/bbl of oil.

2. Assumes 15,000 BOD.

Source: ERG, 1978.

Table 8

EMISSIONS ASSOCIATED WITH GAS AND OIL PROCESSING ON A PLATFORM

Type	Pollutants (pounds/day)				Particulate Matter
	HC	SO _x ²	NO _x	CO	
<u>Gas Processing</u>					
Gas dehydration ¹	0.05	3.3	1	0.2	0.1
<u>Oil Processing</u>					
Heater Treater ³	2	140	43	10	4
Evaporative ⁴	1335	-	-	-	-
TOTAL	1337	143	44	10	4

1. Based on a 350,000 Btu heat requirement/10⁶ ft³ gas processed, 15 x 10⁶ ft³ gas produced/day/platform, 80 percent heater efficiency, and emission factors from EPA, AP-42, Section 1.3 for industrial heaters.

2. Assumes 0.5% fuel sulfur content.

3. Based on 15,000 Btu heat requirement/bbl of oil processed, 15,000 BOD produced/platform, 80 percent heater efficiency, and emission factors for industrial heaters in Section 1.3 of EPA, AP-42, 1976.

4. Assumes 89 lbs HC/10³ bbl oil produced (closed water separators), and 15,000 BOD produced/platform.

Source: ERG, 1978.

Table 9
EMISSIONS ASSOCIATED WITH OIL TRANSPORTATION BY TANKER

Type	Pollutants					Particulate Matter
	HC	SO ₂	NO _x	CO		
Loading ¹	16,800	-	-	-	-	-
Fuel Consumption						
In-Transit ²	34	872	547	6		208
Moored ³	23	605	379	4		208
Purging ⁴ (In Transit)	2,237	-	-	-		-
Ballasting ⁵	1,934					
Venting/Breathing ⁶	420					
TOTAL ⁷	21,028	1,477	926	10		416

1. Assumes 250,000 bbls of oil transferred, 1.6 lbs of hydrocarbon/10³ gal of oil transferred (Dos Cuadras crude).
2. Assumes 200 mile round trip, 16 knot (18.4 mph) speed, 1000 gallon/hr fuel consumption.
3. Assumes 14 hour loading period, 4 hours hoteling/cruising, 10 bbl/hr fuel consumption.
4. Assumes 0.6 lb hydrocarbon emission/10³ gal cargo 35,000 DWT tanker (1,029 x 10⁷ gallon capacity), 5.43 hour trip, and first ten-hour flush expels 2/3 of hydrocarbon vapors.
5. Assumes 0.6 lb/10³ gallon ballast and 15% ballast taken on in addition to any segregated ballast capacity (which takes approximately 2.25 hours).
6. Assumes 0.012 lb HC/DWT cargo (35,000 DWT tanker).
7. Since purging and venting/breathing cannot occur simultaneously, only purging is included in the total.

Table 10

DEVELOPMENT SUPPORTIVE ACTIVITY EMISSIONS

Type	Number	Fuel Consumption gal/hr	Pollutants (pounds/day)				Particulate Matter
			HC	SO _x	NO _x	CO	
Supply Boat ¹	3	280	66	195	2,883	432	126
Crew Boat ²	1	70	6	20	286	42	12
Helicopter ³	1	-	6	2	7	68	3
Fuel Storage ⁴	1	-	35	-	-	-	-
Vehicular ⁵	-	-	6	1	13	148	3

1. Assumes 2 trips/day, 50 mile round trip and 17 mph speed.

2. Assumes 4 trips/day, 50 mile round trip and 25 mph speed.

3. Based on emission factors in EPA, AP-42. Assumes 2 engines/helicopter, and 4 landing-take-off cycles in metropolitan area and 2 cycles for platform (less time spent on platform). Emission factors for flying mode were not available.

4. Based on emissions from a 50,000 barrel fixed roof tank.

5. Assumes 200 personnel and 20 mile trip/day/personnel.

Source: ERG, 1978.

Table 11
PRODUCTION SUPPORTIVE ACTIVITY EMISSIONS

Type	Pollutants (pounds/day)					Particulate Matter
	HC	SO _x	NO _x	CO		
Supply Boat ¹	4	13	192	29		8
Crew Boat ²	0.5	2	24	4		1
Helicopter ³	2	1	2	23		1
Vehicular ⁴	1	Neg.	1	15		Neg.
Fuel Storage	35	--	--	--		--

1. Assumes 2 supply boats for every 5 platforms, 1 trip per day, 50 mile round trip and 17 mph speed.
2. Assumes 1 crew boat for every 3 platforms, 1 trip per day, 50 mile round trip and 25 mph speed.
3. Assumes 1 helicopter/3 platforms, and assumptions in Table 10.
4. Assumes 20 personnel/platform, 20 mile trip/personnel. It should be noted that employees during production phase remain on the platform for one week and are off the week after.

Source: ERG, 1978.

Table 12

SOHIO PROPOSED PROJECT 97TH PERCENTILE (MAXIMUM OPERATING LEVEL) EMISSIONS

Activity or Facility	Pollutant (kilograms/day)				
	Total Hydrocarbons	Sulfur Oxides	Particulate Matter	Nitrogen Oxides	Carbon Monoxide
Storage Tanks ¹	272				
Fugitive Emissions	88				
Electricity Generation ²	69	898	173	864	neg.
Tanker ³ Fuel Consumption - 97th Percentile (in-Port)	<u>61</u>	<u>1,451^{3a} / 735^{3b}</u>	<u>147</u>	<u>1,016</u>	<u>neg.</u>
Sub-Total	490	2,349 ^{3a} / 1,633 ^{3b}	320	1,880	neg.
Tanker Transit-97th Percentile: Pt. Conception	<u>55</u>	<u>1,347^{3a} / 680^{3b}</u>	<u>120</u>	<u>789</u>	<u>neg.</u>
TOTAL: Pt. Conception	545	3,723 ^{3a} / 2,313 ^{3b}	440	2,669	neg.

Source: Port of Long Beach and California Public Utilities Commission, 1977

1. Tanker losses assuming a summer day.
2. Assumes 0.25% sulfur fuel burned.
3. Assumes:
 - a. tankers burn 0.5% sulfur fuel.
 - b. tankers burn 0.25% sulfur fuel.

II. SCENARIO DEVELOPMENT/AIR QUALITY MODELING

Introduction

This section summarizes the preliminary findings of the adequacy of the air quality modeling and scenarios used in the Draft Environmental Statement (DES) for OCS Lease Sale No. 48.

Review of DES Assumptions

The evaluation of air quality impact requires:

1. Scenario of OCS development,
2. OCS emissions based on #1,
3. Selection of year or series of years for evaluation based on #1,
4. Background air quality and non-OCS emissions for year(s) in #3,
5. Worst case meteorology on which evaluation is based, and
6. Applicable air quality model used on data from #2, 4 and 5.

Each is discussed below, except No. 2 which is the subject of the previous section.

[4] Scenarios and Selection of Year

Scenarios serve as the basis for determining the numbers and types of emissions sources, their locations, and the years in which they will operate. This information can be expressed in terms of numbers of platforms, numbers of wells, transportation arrangements, onshore support facilities, and onshore personnel. These units must be described in sufficient detail so that emissions can be specified.

The DES does tabulate by numbers of platforms, wells, pipelines, etc. No description of methodology for scenario development is given, nor is there any justification made for the adequacy of the numbers.

The fact that production on each unit of the OCS is assumed to peak in 1986 indicates that scenarios were not developed from first principles. Apparently a hypothetical case was derived and applied uniformly. This casts doubt on the seriousness of the effort. Simultaneous peaking will not occur. It is contrary to industry practice and highly unlikely, even were the federal government to exert maximum pressure aimed at rapid OCS development.

The simultaneous peaking on all units would have only marginal effects upon the air quality assessment. This follows from the many diverse air flow trajectories in real time.

We are concerned that the assumption of simultaneous peaking may be a subtle hint that the federal government intends to push for accelerated production of all OCS

resources. The environmental consequences would extend far beyond air quality. The BLM should be urged to explain why the scenario assumptions were made.

The shape of the production curve (duration of production, year of peak production, percentage of production in peak year) was analyzed for realism and consistency. It was found that the duration was feasible, but not optimal for maximum resource recovery and least environmental impact. This also implies either federal pressure for rapid development or an effort at producing a worst case. The year of peak production, 1986, seems premature, even with heavy federal pressure for development.

In summary, production on the Dana Point-San Diego tracts will probably peak after 1986, and most probably in the early 1990's. This must be taken into account in Air Quality Maintenance Planning. The DES should discuss a range of scenario options, and why some are more probable than others.

One hundred percent tankering on all tracts is impossible. It probably would occur on the Dana Point-San Diego tracts. It is expected that only gas production would enter San Diego County (by pipeline).

[5] Background Air Quality and Non-OCS Emissions

Background air quality is required to assess the total air pollution burden in comparison with ambient air quality standards (AAQS). This background is either added to the OCS contribution (for "inert" pollutants CO, NO₂, SO₂ and total suspended particulates-TSP) or used as the initial air quality for starting a photochemical simulation (for O₃ and, again, NO₂). This background air quality is known, in part, for present conditions by air quality measurements. However, even the measurements are sparse and data over the ocean almost non-existent.

The DES uses the sparse data (which were readily obtainable for 1975) to interpolate air quality throughout the potential impact region (DES Figure II.H.1-1). The resulting patterns (AV* Figures B-2 through B-5) are, obviously, strongly dependent upon the positions of the measurements used. However, the data are from 1975 and the impacts are sought for 1986. Thus, an adjustment must be made. The adjustment chosen for the DES is proportional scaling based on projected 1986 emission inventories. This is similar to an EPA methodology termed "rollback", except that no mention is made of natural background levels which should not be assumed to change in time. The emissions projections were collected piecemeal from readily available reports (a preferable source would be a comprehensive and consistent document, such as the State Implementation Plan or the soon to be developed Maintenance/Non-Attainment Plan). The DES used scaling based on population projections and, for motor vehicles, including the changes in projected emissions factors. No mention is made of using scaled air quality for the photochemical modeling.

*. Used herein to stand for "Air Quality Analysis of the Southern California Bight in Relation to Potential Impact of Offshore Oil and Gas Development," Aerovironment, November, 1977.

The non-OCS emissions for 1986 are listed in AV Table B-7 without comment as to their nature, and even column headings, so that fundamental questions (such as: Were these emissions also accounted for in the 1986 "background air quality") remain unanswered. It is, therefore, impossible to make incisive judgements as to the competency of the compilation of background data.

[6] Worst Case Meteorology

In order to analyze worst case impacts for comparison to the AAQS, the meteorological conditions for the worst case must be carefully chosen. Usual choices are made on the basis of either presently monitored meteorology corresponding to measured bad air quality conditions, or of hypothesized meteorology picked for major impact from specified emissions sources. For photochemical modeling the former choice is usual, for inert the latter.

These choices are made in the DES, with a final composite worst case selected from the specific cases determined for each source. For the inert modeling, the composite worst case is a low wind speed [.5 - .6 meters per second (1.1 - 1.3 mph)], neutral stability and high mixing height (580 meters) which conditions were chosen on the basis of the following statement (AV pg. VI-5):

"For small buoyancy flux sources such as offshore platforms and small single buoy moors (typical of Sale 48), the maximum plume center line concentration occurs under neutral to unstable thermal conditions and very low wind speeds. For low to intermediate buoyancy flux, such as at larger SBM's, the maximum concentrations occur under neutral to unstable conditions and moderate wind speeds. For large buoyancy fluxes, such as occur at onshore processing plants, the worst case conditions occur under very low wind speeds and stable conditions."

It is our considered opinion that these conditions are not the worst cases for the specific sources ... that stable offshore (zero mixing height) conditions together with neutral to unstable onshore (mixing height high enough to have the elevated plumes fumigate) conditions and low wind speeds would produce higher impacts for low buoyancy sources while high wind speeds are the best choice for high buoyancy sources. Likewise for the composite worst case, stable atmospherics over the ocean - a "water" based inversion - should lead to higher impacts over land when the inversion rises. Stable conditions over the ocean are not unusual and may even be typical for all except the colder days.

Worst case meteorology for analysis of photochemical impacts were chosen for specifically measured poor air quality conditions. There are two choices:

1. A very severely impacted day may be selected. However, the impacts of additional emissions may then be only a small percentage of the total pollutant loading on such an episode day and, therefore, result in minimal additional impact.
2. Or a day just meeting the AAQS may be chosen. Then the source emissions may represent a major portion of pollutant loading and result in more significant impact.

The meteorological conditions chosen should not be simply characterized, but should match the specified air quality. Such stable conditions, as identified above, can also lead to stratified flow that presents a major obstacle to the

type of photochemical modeling reported in the DES (see Section 5).

Two major meteorological influences which dramatically affect the impact of emissions either generated or transported offshore are totally ignored in the draft analysis. The first is the frequent appearances of a convergence zone off the Southern California coast which severely limits dispersion of emissions for several hours, sometimes resulting in very high ozone levels along northern San Diego County's coastline. The night-time drainage winds transport onshore emissions out over the ocean where they are effectively trapped and dispersion is minimized. Normal flow within this convergence zone is slowly southward until the normal late morning sea breeze is established, bringing the emissions and reaction products onshore, all too often into San Diego County. This specific condition recently resulted in a ten-year record high ozone level in the North County coastal area of 39 parts per hundred million (a second-stage air pollution alert) plus 10 additional episodes where ozone exceeded 20 parts per hundred million in San Diego County thus far in 1978.

The potential for significant levels of hydrocarbon and other emissions associated with projected OCS development feeding into this convergence zone can only be expected to produce additional onshore impacts and cannot be ignored.

The second significant meteorological condition not addressed in the DES is the development of a recirculating eddy offshore of the San Diego-Los Angeles coastline several times a year. This eddy, which is not the classic Catalina eddy but a smaller vortex, typically persists for three to twelve hours. Offshore drainage winds and coastal sources contribute emissions to this system which are recirculated to the coast, producing elevated ozone levels in the affected area.

Emissions from OCS development, especially from the 26 near-shore tracts, will contribute to additional air quality deterioration, as in the case noted above.

One additional major point needs mentioning. The largest impacts occur from a large spill for which a zero effective plume rise would be appropriate; and, hence, the worst case meteorology would definitely be stable atmospherics and low wind speed.

[7] Air Quality Models

The air quality model calculates the effects of the emissions and background air quality under the chosen meteorology. The model(s) selected must be applicable to the determining phenomena and sufficiently accurate for meaningful comparison with the AAQS.

For inert modeling, the DES reports the use of PTMAX, PTMTP and CDM. PTMAX was used for determining specific source worst case meteorology and impact. PTMTP calculated combined impacts from multiple sources. CDM calculated long-term (annual) impacts. These models are not applicable to impact on elevated terrain (such as coastal mountains, e.g., Mt. Soledad at 811' or Pt. Loma at 430') and careful consideration must be given to calculations for the smooth flow over the ocean. The latter point is addressed in the DES, but not in the context of multiple sources (for a single source, AV pp. VI-3 through VI-9 show lower but broader impacts for the more stable, above-ocean conditions); and, without serious modification, the models are not applicable to onshore fumigation. The accuracy from use of these models is not commented upon in

the DES. It is important to recognize that PTMAX and PTMTP are, at best, accurate to a "factor of two" and CDM to 50% for the type of application modeled.

For photochemical modeling, the DES reports the application of REM2, a single Lagrangian cell model. This type of model suffers from the limitation of only calculating the impact at one point (e.g., Alpine at 1400 for trajectory SD1); and unless the point of impact is chosen correctly, the maximum impact is not determined. The assumptions in the model make it inapplicable for stratified flow, for impacts on elevated terrain (unless the spatial scales for the air quality are appropriately larger than the terrain scales) and for point sources. The latter is a significant limitation for this application. Difficulties were avoided, in part, by using 10km x 10km "cells" for offshore emissions. But this artificially dilutes the emissions and biases results from point emissions sources. In addition, REM2 is said to approximate horizontal diffusion (vertical diffusion has already been assumed instantaneous) by gradients "calculated from concentrations on each side of the air parcel, assumed proportional to the total emissions one grid length away" (AV pg. C-4). This is a poor approximation for the non-linear photochemical calculation and certainly leaves a great deal to be desired when the grids are 10km. Horizontal diffusion should be determined from the atmospheric concentrations, rather than from the emissions, in order to properly determine its effects through the photochemistry. Finally, REM2 ignores emissions above the mixing layer which, from the description provided in the meteorology discussion (AV pg. VI-3), may be most of the OCS emissions since the mixing depth is as low as 30m (AV pg. D-18). The accuracy reported for REM2 (AV pg. C-11) is 2 pphm average absolute error for O₃, but the AAQS is 8 pphm, i.e., 25% of the AAQS. However, even this accuracy is not confirmed by the large weight of experience; and from the REM2 validation reported (DES pg. 1079) for the Santa Barbara, Los Angeles and San Diego trajectories, the average absolute error was almost 4 pphm for O₃.

[8] Oil Spill Analysis

No direct connection is made between the section of the DES which discusses accident probabilities (DES, pp. 651-667) and the section on air quality modeling of accidents (DES, esp. pp. 1085-1088). There appears, then, to be no constraint on the choice of accident modeling scenarios. There is also no ultimate criterion which determines whether enough cases (or the best cases) have been modeled.

We would have liked to see the SD1 trajectory run because of (1) higher near coastal ambient air pollution, and (2) the higher probability of an accident in the San Pedro Bay tracts. This run would still be relevant to San Diego, even if the San Diego tracts are not developed (or developed later). The critique of modeling, described above, also applies to the modeling of accident scenarios.

[9] Phasing

If production on multiple units can result in measureable increases in ambient air quality measurements onshore, then there would be enhanced possibility of exceeding the air quality standards. This possibility hinges on an adequate assessment of air quality impacts. The REM2 model is incapable of accounting for multiple emissions sources and multiple impact points. A fully gridded

model would be required. Therefore, nothing was gained by assuming simultaneous peaking of all OCS production. It would take innumerable REM2 runs to identify regional impacts.

Phasing of the peak year of production may be important. It would make sense to determine the year of maximum sensitivity of onshore areas to air quality impacts from OCS emissions sources and then determine whether the given year(s) could experience peak or near-peak activity on tracts upwind. Phasing, however, should not be artificially manipulated.

[10] Production Profile

The BLM apparently chose a profile with maximum feasible percentage of production occurring in the peak year. Whether this assumption is realistic rests on presently unstated federal policy on desired production rates on Sale 48 leased tracts. The U.S. Geological Survey in 1978 instituted a policy of simultaneous development of leased tracts in the Santa Barbara Channel. Leaseholders are complaining that this procedure foregoes the systematic collection of geographical and resource data which affects production decisions. (H. M. Wilson, "Interior Pressing Action in Santa Barbara Channel," Oil and Gas Journal, 6/26/78).

[11] Background Air Quality

As an alternative, the background air quality used in the inert modeling should have been developed from comprehensive and consistent projections made for 208 plans or for Maintenance/Non-Attainment Plans. These plans provide, at the least, a generalized and consistent air quality throughout the region for future times. With no description of the DES methodology available, and the printed data unlabeled, it is impossible to judge the adequacy of the projected background air quality used by the model.

[12] Worst Case Meteorology

For inert modeling, the worst case meteorology suggested previously (stable over the ocean and fumigating over the land), could produce significantly higher impacts on the land (factors of 2 to 10 are easily possible, depending upon the distances involved). Further quantification of the possible effects would require detailed calculations. Alternative wind angles could also cause major effects: e.g., in AV Figure VI-10, if the two impacts were aligned, a maximum of .6 to .8 ppm NO₂ might be expected, instead of .5 ppm.

The effects of alternatives on the photochemical modeling are less clear since the impacts reported are limited to one point and the simulation is non-linear. At the least, viewing a full temporal and spatial impact pattern would suggest alternative effects and alternative modeling assumptions.

In reference to the impact from a spill, at least an order of magnitude increase in impact could be expected for the choice of a truly worst case meteorology.

Responses To:

County of San Diego, Integrated Planning Office

- [1] In analyzing emissions, the major effort was devoted to estimating, as accurately as possible, those emissions that accounted for the greatest percentage of the total. Minor emissions received less attention. Oil spills, tankers and barges loading and onshore oil and gas processing were identified as the major emission sources, and the ERG study confirms these. Total emissions from various combinations of minor sources are within the uncertainties of the estimates of major source emissions (see Table 3 of San Diego comments). The conclusions of the study would be unchanged by a detailed year-by-year definition of scenarios and detailed calculations of emissions for each year.

The impact analysis was based on a study of the worst-case year with respect to major emissions. Since production from several areas is combined for tankering and processing, maximum emissions are most closely related to maximum total production rather than to production in individual areas. The contribution of activities in the Santa Barbara Island and San Diego/Dana Point areas are so small that they are within the uncertainties of estimating emissions from the larger production areas. Figure 1 in the San Diego comments is a semi-log plot which, at first glance, exaggerates the contribution of the low-production areas. This figure confirms that 1986 is the year of maximum total-production.

- [2] The material describing the tankering scenarios has been consolidated and relocated to Section III.D.1 in the report. Segregated ballast tanks (negligible ballasting emissions) were assumed for tankers since it was anticipated that these controls would be required as part of the State Implementation Plan. There are no tankers that are dedicated to Sale 48 activities; all will be carrying oil from other sources and should be controlled whether Sale 48 is carried out or not.

Annual emissions estimates have been added to Table III.D.1.a-1, and the table has been revised to delineate various geographic areas.

- [3] Refer to page V-4 of the AV Report. Emission factors were selected from 3 sources (including the California Air Resources Board) and the lowest supportable factors were chosen in all cases.

Emissions for the SOHIO project were taken from the sources referenced and were used for comparison purposes only. Moderate changes in emission fluxes from this source will not alter the conclusions with respect to Sale 48.

The unlikelihood of the Oxnard site of the LNG terminal is mentioned in the text.

- [4] Since tanker loading and unloading are the major pollution source the year of peak loading and unloading (1986) was selected.
- [5] The conservative nature of the background concentrations assumptions are discussed in the Final ES. The Maintenance/Non-Attainment Plan is not available and thus cannot be used for analysis.
- [6] As indicated in Section III.D.2, the worst-case meteorological conditions were chosen to determine maximum impact from Sale 48 even if this impact were located beyond 3 miles offshore. The worst-case meteorology, based on results from PTMAX model, reflect this philosophy. This approach allows identification of the maximum impact (while will be larger than the impacts on shore). The meteorology identified by San Diego would increase onshore impacts but these impacts would still be less than the impacts identified in Section III.D.2. Thus, worst-case impacts were identified in the impact section. The mixing height was selected so that all emissions from Sale 48 would be trapped below it. The effect of assuming a lower mixing height would, at most, double the onshore impact but have very little impact on the maximum concentration locations. As discussed in the Final ES, the models are accurate to within a factor of 2.

The trajectories used in the analysis travel from the Sale 48 emission sources offshore of Dana Point and San Diego, down the coast line and then onto shore. These trajectories are constructed so that the maximum emission impact from Sale 48 can be modeled.

The Final ES has had a section added discussing Sale 48 and Attainment Plans.

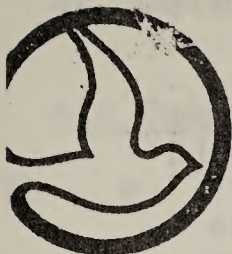
- [7] A discussion of the accuracy of the inert models and their applicability to this application is in the Final ES, including addressing these comments.

By using a Lagrangian model such as REM2 it is possible to define a worst-case trajectory that passes over the source of greatest interest and passes over the receptor point of maximum interest. The model computes the hour-by-hour ozone along the trajectory. In the judgement of the contractor,

this technique is superior to an Eulerian model (or a hybrid such as MADCAP) that requires meteorological data for a large grid system and for all practical purposes must use measured data for specific days. With these complex models it is not practical to define a hypothetical worst-case scenario that insures that the emissions from a proposed project are transported along a path that will result in maximum ozone production.

The use of 10 km grid squares for modeling over the ocean was validated in unpublished sensitivity studies filed with the POCS office. Comparison of 10 km and 1 km grids showed that the use of 10 km grids gave a 20 percent higher air quality impact than the 1 km grids. The effect of the horizontal diffusion term in REM2 was shown to be minimal in a paper (78-10-03) presented by Dr. Drivas of PES at the APCA meeting in Houston in 1978. All conclusions with respect to Sale 48 were based on a comparison of two modeling runs which were identical except that Sale 48 emissions were included in only one of them. When the model is used in this comparative mode, most of the absolute errors in estimating ozone levels will cancel out.

- [8] It is felt that the accident analysis is sufficient to determine the level of magnitude of impact of an oil spill accident on air quality. This is presented in the Final ES. Thus, additional accident cases are not felt to be necessary.
- [9] The photochemical modeling identified the maximum impact from Sale 48 activities. Other trajectories or less emissions would thus have less impact. The phasing of the activities so that 1986 is assumed to be the maximum production year is discussed in Section I.A.2.
- [10] The productions scenario was provided by the USGS based upon the best available information.
- [11] The Maintenance/Non-Attainment Plans are neither finalized nor approved by EPA (and won't be until at least mid-1979). Thus, they are not available for use. A discussion of the background air quality used is given in the Final ES. A more detailed discussion is presented in POCS Reference Document No. V (AeroVironment Report).
- [12] The potential air quality conflict between Sale 48 and the other major projects is addressed in Section III.D.2. The other comments are responded to above.



ES 48

**South Coast
AIR QUALITY MANAGEMENT DISTRICT**

DISTRICT HEADQUARTERS
9420 TELSTAR AVENUE, EL MONTE, CALIFORNIA 91731 • (213) 443-3931

November 14, 1978

File No. C 81012 C

Mr. Thomas Cooke
Pacific Continental Shelf Office
Bureau of Land Management
7663 Federal Building
300 North Los Angeles Street
Los Angeles, CA 90012

Dear Mr. Cooke:

We have reviewed the Draft Environmental Statement for the Outer Continental Lease Sale Number 48 and have the following comments to offer on its air quality analysis as it applies to the South Coast Air Basin.

[1] General Comments

Our principal and overall criticism of the DES's air quality analysis is its lack of detailed information on the methodologies and assumptions employed and its inadequate supporting documentation for the data presented. This general comment applies to all sections of the analysis. We are told on page 1021 and elsewhere in the DES that necessary details and rationales for the analysis are contained in a separate publication by Aerovironment. This is hardly acceptable in a full disclosure document such as an EIS. Because we do not have the referenced publication our comments on the DES are necessarily limited to some extent.

We realize that the potential impacts of a complex project such as OCS Sale 48 are extremely difficult to quantify and cannot be done without making many basic assumptions. For that reason the assumptions used should be precisely defined and fully documented.

Specific Comments

[2] Climate and Meteorology

Climatic data for the project area are not nearly as extensive as it could and should be in view of the current availability of data. For example:

- Wind frequencies, Table II B-I, page 66, are only for Pt. Mugu and for San Francisco which is quite distant

November 14, 1978

from the Sale 48 area. There are several wind measuring stations in the area in addition to Pt. Mugu that should have been included in this table.

- The above comment also applies to Table II B-2, on page 72, which list various climatological parameters for three coastal areas one of which, San Francisco, is nowhere near the Sale 48 area. No data is shown for the San Pedro Bay or Santa Monica Bay areas.
- The climatology section contains no data on temperature inversions and mixing depths for either the Sale 48 ocean area or areas downwind which would be impacted. However, for all dispersion modeling contained in the DES a neutral stability is assumed. Justification for such assumptions should be documented with data on inversion heights and frequencies of occurrence as these data are available.

Existing Air Quality

- [3] • Available air quality data for the coastal areas downwind of Sale 48 are relatively profuse but this is not reflected in the tables on pages 544-566 with respect to number of stations listed. Other comments are:
- [4] • The only important air contaminant for which data are not shown in the air quality tables but should have been is sulfate particulate matter. Sulfate particulates, which are produced in the atmosphere from sulfur oxide emissions and can have serious health effects, are a major problem in the South Coast Air Basin because of increased combustion of sulfur bearing fuels and prevailing meteorology.

Existing Emission Inventories

- [5] • Except for a South Coast Air Basin inventory of unknown origin or date, shown in Table III.D.1.a-1, there are no inventories in the DES of existing emissions for the coastal areas involved either seaward or shoreward.
- [6] • The final paragraph of page 620 mentions "oxidant emissions" from tankers and other components of the SOHIO Project. Ozone/oxidants are secondary contaminants which are never emitted directly from sources but are photochemically formed later in the atmosphere from primary contaminants such as hydrocarbons and nitrogen oxides.

Air Quality Impacts and Modeling

- [7] ● From an emission standpoint the DES has correctly assumed a "worst case" by totaling emissions from all sources even though not all sources would be emitting at the same time. Also, the use of maximum hourly rates when rates were not constant is a correct "worst case emission" assumption.
- [8] ● Table III. D.1.a-1, page 1021, is highly misleading because in comparing project emissions with South Coast Air Basin emission it gives a first impression that all of the Sale 48 emissions will be impacting that one air basin. Perhaps a better comparison would be to compare the emissions of each air basin involved with those project emissions likely to impact each respective basin.
- [9] ● "Normal tankering" and "100 percent tankering" scenarios are not clearly defined in the DES making it difficult to follow and understand other parts of the air quality analysis.
- [10] ● With regards to the modeling, the DES is glaringly deficient in details on input data, emission calculations and locations and methodologies.
- [11] ● Defects noted in the modeling of inert pollutants are:
 - 1. Inability of the EPA models used to account for rough terrain and to model pollutant trapping against the coastal ranges.
 - 2. No modeling of offshore buildups of pollutants due to convergence and stagnation before coming ashore.
 - 3. Nitrogen dioxide levels computed by inert pollutant modeling are probably much too high because of the assumption that all NO is converted to NO₂.
 - 4. Neutral atmospheric stability is probably not the "worst case" stability that can be used in modeling plumes which come on shore from offshore sources. Emission into a stable layer followed by fumigation of the plume when it comes ashore would probably give higher ground level concentrations. This would apply to photochemical modeling as well.
- [12] ● We appreciate that a large effort undoubtedly went into the photochemical modeling for this DES; however, the resulting ozone levels shown in the DES appear to be far

November 14, 1978

too small in relation to emissions from various project sources. The lack of sensitivity of the photochemical model may have been due to:

1. Use of too large a grid (10 X 10 km or 38.4 sq. mi.) for the project emissions which results in over dilution before the photochemistry starts.
2. Use of neutral stability instead of a stable layer.
3. Most photochemical models including REM2 have not been validated for the high hydrocarbon to nitrogen oxides ratios found in tanker loading scenarios.

- [13] • Secondary emissions caused by the project such as vehicular, electric power generation and induced growth in supporting activities have not been mentioned in the DES.

[14] Mitigation Measures

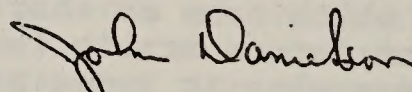
While the DES does not specifically mention the matter of emission offsets or trade-offs to mitigate project emissions, we infer from the statement on page 1223, that all project operations will be subject to the regulations of local agencies, that such offsets can be required by air pollution control agencies having jurisdiction over various portions of the project.

From our review of the DES for OCS Sale 48 we conclude that operation of this project without full mitigating measures would have an adverse impact on air quality in the South Coast Air Basin and would not be consistent with the attainment and maintenance of the national air quality standards.

If you have any questions regarding these comments, please call Mr. Thomas Mullins at (213) 443-3931, extension 241.

Very truly yours,

J.A. Stuart
Executive Officer



John Danielson
Senior Air Quality Specialist

JAD:ldm

Responses To

South Coast Air Quality Management District

- [1] The South Coast AQMD reviewed the AeroVironment report (POCS Reference Paper No.V) on 10-19-77 and gave it an adequate rating (SCAQMD File #B709294). This and all other reference documents are and have always been available upon request.
- [2] The wind data tables have been revised. An expanded discussion of inversions and mixing depths has been included.
- [3] Data from all stations were used in the analysis. However, in order to cut down on unnecessary bulkiness of the document, only selected stations were presented.
- [4] A more detailed discussion of sulfate particulates is presented (see Table II.H.1-9).
- [5] Emission inventory references are discussed in the AeroVironment report. Table III.D.1.a-1 has been revised to take this comment into account. In addition, emission inventories for all coastal areas affected by Sale 48 have been presented in section VIII.A.
- [6] The text has been corrected as suggested.
- [7] No response required.
- [8] Table III.D.1.a-1 has been revised.
- [9] Normal and 100 percent tankering definitions have been added in Section III.D.1.
- [10] Technical details of the air quality analysis are available in the POCS Reference Paper No. V (AeroVironment Report) which was reviewed by SCAQMD on 10-19-77. The purpose of this EIS is to present results from the AeroVironment report.
- [11] The inert models used are recommended by the EPA (EPA, Guidelines on Air Quality Models). The models and assumptions used are detailed in POCS Reference Paper No.V.

The impact of flow reversal would be to increase the background concentrations used in conjunction with the Gaussian plume model impacts. The increase in background would be less than the size of the impacts shown for onshore because of the diffusion which occurs to pollutants emitted earlier. This increase in impact is within the accuracy of the models used.

The NO to N₂ conversion assumption, like many other assumptions, was made conservatively to identify the maximum, worst case impact from Sale 48.

- [12] The use of 10 km grid squares for modeling over the ocean was validated in sensitivity studies filed with the POCS Office. Comparison of 10 km and 1 km grids showed that the use of 10 km grids gave a 20 percent higher air quality impact than the 1 km grids. Since the impact of Sale 48 was evaluated by comparing identical trajectories, with and without the sale, the differences in grid size would be nearly cancelled out.

Sensitivity tests (Paper 78-10-3 by Dr. Drivas at the APCA meeting in Houston in 1978) have shown that the horizonatal diffusion term in REM2, which is related to stability, makes no more than ± 2 percent difference in results.

The photochemistry in the REM 2 model is "state of the art". There is no proof that it is not valid for the conditions modeled.

- [13] Secondary emissions were accounted for in the photochemical modeling runs by assuming that hydrocarbon emissions from area sources in 1986 were identical to those in the base year.

The decrease from the motor vehicle control program was assumed to be accompanied by an equivalent increase in secondary emissions.

- [14] The section on mitigation measures has been rewritten.



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD (G-WEP-7/73)
WASHINGTON, D.C. 20590
PHONE: 202-426-3300

20 MAY 1978

Bureau of Land Management
Attn: Mr. Grant
Pacific OCS Office
7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Mr. Grant:

The concerned operating administrations and staff of the U. S. Coast Guard have reviewed the draft environmental impact statement (DEIS) for the proposed Outer Continental Shelf (OCS) Oil and Gas Lease Sale No. 48 Offshore Southern California. We offer the following comments for your consideration in preparing the final statement.

Enclosed is a copy of the Commander, Eleventh Coast Guard District, comments on the proposed sale which were delivered at a public hearing in Long Beach, California on 27 October 1978. Those comments emphasize the Coast Guard's greatest concerns, leasing of tracts surrounding the western terminus of the Santa Barbara Channel (SBC) Traffic Separation Scheme (TSS) and leasing of tracts in the precautionary area where the SBC and the Gulf of Santa Catalina (GSC) TSS's join at the entrances to the Ports of Los Angeles and Long Beach. This is not to ignore that many more tracts are being offered within both TSS's. We feel however, that exploratory drilling conducted according to 33 CFR 209.138A in the GSC TSS's will present an acceptable, although undesirable risk. Exploratory drilling in the SBC TSS is expected to continue as in the past with no exploratory drilling allowed within 1/4 nautical mile of the traffic lanes without the consent of the Commander, Eleventh Coast Guard District.

The Commander, Eleventh Coast Guard District has initiated action to establish shipping safety fairways (SSF) to cope with the prospect of exploratory activity in tracts totally surrounding the SBC TSS western terminus. These SSF's would serve as traffic lane extensions in which exploratory drilling would be restricted thru the lease area. The draft statement does not separately address the true effects of tracts surrounding the SBC TSS western terminus; rather, the statement groups these tracts with all the other SBC tracts. It would be valuable to address



It's a law we
can live with.

those effects separately as well as the effect on the proposed sale if: (a) all tracts on the TSS extension were withdrawn; or (b) the proposed SSF's were instituted. The proposed SSF's are described in Enclosure (2). An SSF, or some other routing measure through the lease area which limits exploratory activity would reduce adverse effects on navigation. The western terminus of the SBC TSS is the junction point of several ocean and coastwise shipping routes. Moving this junction beyond the lease area and routing vessels in a single route through the lease area may well result in fewer adverse effects on navigation.

Alternative 12 on page 1343 of the DEIS adequately considers the effect of leasing tracts within the precautionary area; and the alternative describes the mitigating measure of restricting activity in tracts 123 and 124, and withdrawing tracts 120, 121, and 122. We would like to emphasize the Coast Guard position supporting this action.

Questions were asked at the aforementioned public hearing which are deserving of written comment. The first was: What is the possibility of moving the TSS's and precautionary area? We feel this is impractical for the following reasons:

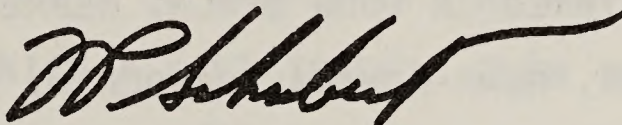
- a. Geographical. The precautionary area exists because of the convergence of traffic at the Ports of Los Angeles and Long Beach. There are no sound relocation alternatives as long as these two ports remain in existence.
- b. OCS Lease Sale. Existing leases surround the TSS's. Relocation would only place the TSS in other lease areas. Present lease holders in or near the TSS knew of the restrictions on tract development due to the location of the TSS's when the lease was effected. Tracts in Sale #48 will complete the leasing of all navigable areas in the SBC and will further surround the GSC TSS.
- c. Alternate Ocean Usage. Critical existing ocean use factors precluding relocation include missile splash down areas, Department of Defense operating areas, state declared areas of biological significance, and high density recreational boating areas.

A second question raised is why the Coast Guard insists on 1/4 nautical mile buffer zones on each side of each lane where restrictions on drilling are the same as for restrictions in the traffic lane. Article 5 of the Convention on the Continental Shelf states (1) exploration and exploitation must not result in

unjustified interferences with navigation; (2) safety zones should be established around installations for their protection from ships (the installation with its safety zone then becomes a single entity); and (3) this entity may not be established where it will interfere with usage of recognized sea lanes essential to navigation. The Commander of the Eleventh Coast Guard District intends to establish safety zones around all platforms close to areas used by shipping for the protection of those platforms in accordance with 33 CFR 147. Generally, the size of the zone will vary with the location and proximity to shipping. Maximum-sized zones will be used for structures in close proximity to a TSS. The 1/4 mile buffer can be imagined as a series of safety zones along each lane. Buffers do not increase lane widths, but rather serve to maintain the full navigable width of lanes free from navigational structures along their length. Traffic lane widths are decided without regard to the possibility of structures being placed along their boundaries, thereby casting a "hazard shadow" into the lane. Since vessels are not readily maneuverable they must pass well clear of structures; therefore a structure placed close to a lane would restrict free and full navigation within the lane and present a much higher potential for catastrophe. Although Coast Guard policy is that fixed structures must be well removed from traffic lanes to allow for safety zone establishment, temporary structures are permissible, in a controlled manner, in the buffer zones and traffic lanes of the SBC TSS on a case-by-case basis if it can be demonstrated to the Commander, Eleventh Coast Guard District, that such placement of structures is the only viable alternative for exploration purposes.

The opportunity to review the draft statement is greatly appreciated.

Sincerely,



F.D. CONNER
Commander, U.S. Coast Guard
Eleventh Coast Guard District
Long Beach, California

- Encl: (1) Copy of the Commander, Eleventh Coast Guard District, comments on the proposed sale which were delivered at a public hearing in Long Beach
(2) Copy of the proposed Shipping Safety Fairways (SSF)

UNITED STATES COAST GUARD

STATEMENT

BEFORE THE

BUREAU OF LAND MANAGEMENT

UNITED STATES DEPARTMENT OF THE INTERIOR

PUBLIC HEARING

ON LEASE SALE NO. 48

IN LONG BEACH, CALIFORNIA

OCTOBER 27, 1978

GOOD MORNING. I AM CAPTAIN DONALD M. TAUB, CHIEF OF THE MARINE SAFETY DIVISION OF THE ELEVENTH COAST GUARD DISTRICT HEADQUARTERED IN LONG BEACH, REPRESENTING THE DISTRICT COMMANDER, REAR ADMIRAL HAROLD W. PARKER. WE WELCOME THIS OPPORTUNITY TO PRESENT OUR POSITIONS ON TWO MAJOR CONCERNS WITH OUTER CONTINENTAL SHELF SALE NO. 48.

THE COAST GUARD HAS RESPONSIBILITY FOR ENSURING VESSEL SAFETY IN OUTER CONTINENTAL SHELF WATERS, AS WELL AS THE PROTECTION OF STRUCTURES THEREIN AND THE MARINE ENVIRONMENT. IN THIS REGARD WE MUST PROVIDE INPUT TO ANY PROCEDURE WHICH MAY INTRODUCE A HAZARD TO NAVIGATIONAL SAFETY. AT THE SAME TIME, IT IS THE COAST GUARD'S POLICY TO WORK WITH OTHER GOVERNMENT AGENCIES TO ALLOW DEVELOPMENT OF OUTER CONTINENTAL SHELF OIL AND GAS RESOURCES, BUT WILL TAKE MEASURES TO

MINIMIZE CONFLICTS BETWEEN VESSELS AND DRILL RIGS, ETC. DURING THE PERIODS OF EXPLORATION. AT LATER STAGES, OUR CONCERNS WILL BE TO ADDRESS THE FIXED STRUCTURES THAT MIGHT RESULT, ESPECIALLY THOSE NEAR ESTABLISHED VESSEL ROUTING MEASURES WHERE OUR PURPOSE WILL BE TO MAINTAIN UNOBSTRUCTED PORT ACCESSSES.

OUR FIRST MAJOR CONCERN IS THE THREE PROPOSED TRACTS, NUMBERED 120, 121, AND 122, THAT ARE LOCATED INSIDE OF TRAFFIC SEPARATION SCHEME (TSS) PRECAUTIONARY AREA LOCATED ON THE SEAWARD SIDE OF THE LOS ANGELES-LONG BEACH HARBOR BREAKWATER. THIS PRECAUTIONARY AREA SERVES AS THE JUNCTION FOR THE BREAKWATER ENTRANCES AND THE FOUR TSS TRAFFIC LANES OF THE SANTA BARBARA CHANNEL AND THE GULF OF SANTA CATALINA TSS'S. THIS THREE PART ROUTING SYSTEM WAS ESTABLISHED BY THE COAST GUARD AND WAS INTERNATIONALLY ADOPTED BY THE INTER-GOVERNMENTAL MARITIME CONSULTATIVE ORGANIZATION (IMCO), AN AGENCY OF THE UNITED NATIONS, TO PROVIDE AND ORGANIZE A SAFE TRAFFIC FLOW IN AND OUT OF THIS MAJOR PORT AS WELL AS SERVE OTHER PORTS AND PLACES ALONG THE ROUTES OF THE TWO SETS OF SEPARATED ONE WAY TRAFFIC LANES. THE THREE TRACTS IN QUESTION ARE UNACCEPTABLE AS THEY ARE LOCATED DIRECTLY ACROSS THE ENDS OF THREE OF THE FOUR TRAFFIC LANES.

IT IS NOTED THAT THE DRAFT ENVIRONMENTAL STATEMENT FOR OCS SALE NO. 48 DISCUSSES THE IMPACTS OF THESE THREE TRACTS AND INDICATES THAT IT WOULD BE BENEFICIAL IF THEY WERE DELETED

FROM THE SALE, BUT DOES NOT SAY THAT THEY WILL BE DELETED. HOWEVER, A LETTER FROM THE MANAGER OF THE PACIFIC OCS OFFICE, BUREAU OF LAND MANAGEMENT TO THE COMMANDER, ELEVENTH COAST GUARD DISTRICT DATED JULY 18 1978 STATES THAT HE WILL FORMALLY RECOMMEND THAT THESE TRACTS BE DELETED FROM SALE NO. 48 AT A LATER TIME DURING THE FINAL TRACT SELECTION PROCESS.

THE SECOND MAJOR CONCERN IS WITH THE PROPOSED TRACTS THAT SURROUND THE WESTERN TERMINUS OF THE SANTA BARBARA CHANNEL TSS. THIS TSS PRESENTLY TERMINATES/ORIGINATES AT THE OPEN SEA ENTRANCE TO THIS CHANNEL WHERE IT MERGES WITH VARIOUS INTERNATIONAL AND DOMESTIC OCEAN SHIPPING ROUTES. IT SHOULD BE OBVIOUS THAT IT WILL BE NECESSARY TO EXTEND THE TSS SEAWARD THROUGH THE PROPOSED LEASE AREA. THIS WILL SERVE TO MAINTAIN SAFE ACCESS ROUTES AND MINIMIZE IMPACTS UPON THE SURROUNDING TRACTS BY CONSOLIDATING THE VARIOUS SHIPPING ROUTES.

THE COAST GUARD HAS INITIATED ACTION WITH THE ARMY CORPS OF ENGINEERS TO SO EXTEND THE SANTA BARBARA CHANNEL TSS AND TO LIMIT EXPLORATORY ACTIVITIES IN THE SAME MANNER AS FOR THE EXISTING TRAFFIC LANES. THIS EXTENSION WILL BE COMPATIBLE WITH FUTURE ROUTING MEASURES BEING DESIGNED TOWARD OCS SALE NO. 53.

WE ALSO WISH TO POINT OUT THAT FUTURE CONSIDERATIONS MAY NEED TO BE MADE TO PROVIDE SAFE ENTRY AND DEPARTURE VESSEL

ROUTES FOR THE PROPOSED LNG TERMINAL AT LITTLE COJO, POINT
CONCEPTION NEAR THE WESTERN END OF SANTA BARBARA CHANNEL.

THIS COMPLETES THE STATEMENT OF OUR PRINCIPAL CONCERNS.

THE STATEMENTS THAT FOLLOW ARE A DISCUSSION OF THE INTERNATIONAL
TREATY AND IMCO RESOLUTIONS AND FEDERAL ACTIONS TAKEN TO
STATE AND ADDRESS THE PRIMARY NEED TO MAINTAIN UNOBSTRUCTED
VESSEL ROUTING MEASURES ON THE CONTINENTAL SHELF.

THE (INTERNATIONAL) CONVENTION ON THE CONTINENTAL SHELF,
DONE AT GENEVA ON APRIL 29, 1958 TO WHICH THE UNITED STATES
WAS SIGNATORY, ADDRESSED THE NECESSITY OF MAINTAINING VESSEL
TRAFFIC ROUTES WHERE CONTINENTAL SHELF ACTIVITIES MIGHT TAKE
PLACE. ARTICLE 5 OF THIS TREATY INCLUDES THE FOLLOWING
PARAPHRASED STATEMENTS:

(1) EXPLORATION AND EXPLOITATION OF NATURAL RESOURCES MUST
NOT RESULT IN ANY UNJUSTIFIABLE INTERFERENCE WITH NAVIGATION,
AND

(2) INSTALLATIONS MAY NOT BE ESTABLISHED WHERE INTERFERENCE
MAY BE CAUSED TO THE USE OF RECOGNIZED SEA LANES ESSENTIAL
TO INTERNATIONAL NAVIGATION.

VARIOUS RESOLUTIONS ADOPTED BY IMCO HAVE ADDRESSED THE
PROVISIONS OF THE AFORESAID CONVENTION. THE COAST GUARD HAS
ESTABLISHED THROUGH IMCO THE INTERNATIONALLY RECOGNIZED
ROUTING SYSTEM IN SOUTHERN CALIFORNIA WATERS THAT CONSISTS

OF THREE PARTS, THE TWO TRAFFIC SEPARATION SCHEMES (TSS'S), ONE THROUGH THE GULF OF SANTA CATALINA AND ONE THROUGH THE SANTA BARBARA CHANNEL, BOTH CONSISTING OF SEPARATED ONE WAY TRAFFIC LANES THAT JOIN IN THE PRECAUTIONARY AREA LOCATED SEAWARD OF THE LOS ANGELES-LONG BEACH HARBOR BREAKWATER.

IMCO RESOLUTION A. 378(X) STATES THAT (QUOTE)"GOVERNMENTS ARE RECOMMENDED TO ENSURE, AS FAR AS PRACTICABLE, THAT OIL RIGS, PLATFORMS AND SIMILAR STRUCTURES ARE NOT ESTABLISHED WITHIN SYSTEMS ADOPTED BY IMCO OR NEAR THEIR TERMINATIONS". (UNQUOTE). THIS RESOLUTION, AS WELL AS REGULATIONS AND PERMIT CONDITIONS ISSUED BY THE ARMY CORPS OF ENGINEERS IN COOPERATION WITH THE ELEVENTH COAST GUARD DISTRICT, PROVIDE FOR EXPLORATION ACTIVITIES IN OR NEAR THE TSS SYSTEM. ANOTHER IMCO RESOLUTION, A. 379(X), ALSO RECOMMENDS THAT GOVERNMENTS (QUOTE) "ENSURE THAT THE EXPLOITATION OF SEA-BED RESOURCES DOES NOT SERIOUSLY OBSTRUCT SEA APPROACHES AND SHIPPING ROUTES"(UNQUOTE).

--

MORE RECENTLY ON OCTOBER 17, 1978 THE PRESIDENT OF THE UNITED STATES SIGNED A NEW LAW ENTITLED THE "PORT AND TANKER SAFETY ACT OF 1978" WHICH AMENDS THE PORTS AND WATERWAYS SAFETY ACT OF 1972. THIS NEW LAW INCLUDES A PROVISION FOR THE DESIGNATION OF PORT ACCESS ROUTES. THE FIRST PARAGRAPH OF THIS NEW SUBSECTION READS AS FOLLOWS.

"(C) PORT ACCESS ROUTES. - (1) IN ORDER TO PROVIDE SAFE ACCESS ROUTES FOR THE MOVEMENT OF VESSEL TRAFFIC

PROCEEDING TO OR FROM PORTS OR PLACES SUBJECT TO THE JURISDICTION OF THE UNITED STATES, AND SUBJECT TO THE REQUIREMENTS OF PARAGRAPH (3) HEREOF, THE SECRETARY SHALL DESIGNATE NECESSARY FAIRWAYS AND TRAFFIC SEPARATION SCHEMES FOR VESSELS OPERATING IN THE TERRITORIAL SEA OF THE UNITED STATES AND IN HIGH SEAS APPROACHES, OUTSIDE THE TERRITORIAL SEA, TO SUCH PORTS OR PLACES. SUCH A DESIGNATION SHALL RECOGNIZE, WITHIN THE DESIGNATED AREA, THE PARAMOUNT RIGHT OF NAVIGATION OVER ALL OTHER USES." (EMPHASIS ADDED)

I WISH TO UNDERSCORE ITS CLOSING PHRASE.. "THE PARAMOUNT RIGHT OF NAVIGATION OVER ALL OTHER USES". PROVISIONS ARE MADE HOWEVER FOR EXISTING LEASES, AND TO ADJUST THE LOCATION OR LIMITS OF DESIGNATED FAIRWAYS OR TRAFFIC SEPARATION SCHEMES AS MAY BE NECESSARY.

THANK YOU FOR THIS OPPORTUNITY TO APPEAR.



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMANDER (mps)
ELEVENTH COAST GUARD DISTRICT
UNION BANK BUILDING
400 OCEANGATE
LONG BEACH, CA.

16652/Traffic Lanes/

27 OCT 1978

From: Commander, Eleventh Coast Guard District
To: District Engineer, Los Angeles District, Corps of Engineers
Subj: Shipping Safety Fairways (SSF) at the Western Terminus of the Santa Barbara Channel (SBC) Traffic Separation Scheme (TSS) and OCS Sale No. 48.

Ref: (a) Draft Environmental Statement (DES) for OCS Sale No. 48

1. Reference (a) addresses the impacts of proposed OCS Sale No. 48 including the impact on vessel routing measures. This latter is of concern to the Coast Guard because of the location of several tracts in or near the SBC TSS and its western terminus. It is obvious measures must be undertaken to maintain the unobstructed use of the TSS and approaches thereto during both the exploratory phase of development and then exploitation from fixed platforms. This letter discusses proposed solutions to this problem only for the exploratory phase and the "500 yard" width is cited for the "buffer zone" to be consistent with existing rules and permit conditions. (A 500 meter dimension is used in conjunction with fixed structures and their respective safety zones.)

2. The following two solutions are proposed for your consideration:

a. SSF's which would be extensions of the TSS traffic lanes through OCS Sale No. 48 area (see encl (1) for coordinates) and the proviso on Exploratory Drilling Permits for OCS tracts near the SSF's that no drilling may be conducted within 500 yards of the SSF without our consent, or

b. SSF's which would be extensions of the TSS traffic lanes and their 500 yard buffer zones (see encl (1) for coordinates) through OCS Sale No. 48 area.

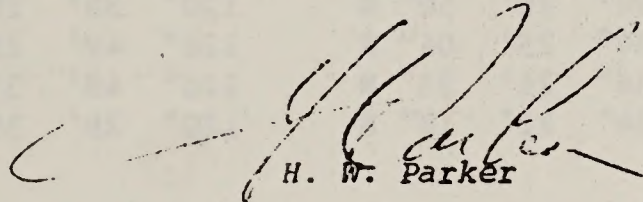
The SSF's would be an interim solution until a permanent extension to the SBC TSS would be made.

3. One other alternative was studied for the western terminus problem, Port Access Routes (PAR). You may be familiar with these implemented in the New York area as a result of Corps and Coast Guard cooperation. They allow for exploratory drilling and shipping to exist in four routes, shipping occupying the first and third and drilling allowed

in the second and fourth. At the end of some period of time, shipping and drilling priorities swap. At some time in the future, exploratory drilling ceases, production proposals are made and vessel routing adjusted accordingly. We have discarded this alternative as impractical in the SBC due to the geographical limitations of the SBC itself. Also the TSS is established and printed on charts published internationally and would adversely impact upon existing leases if the lanes were re-located. Further, BLM cannot state that another OCS sale will not follow No. 48 in the same area which would further extend the exploratory drilling periods.

4. It is requested that you continue to condition all future Exploratory Drilling Permits for OCS tracts in or near the SBC TSS such that no drilling is allowed within the traffic lanes or buffer zones without the consent of the Commander, Eleventh Coast Guard District. This does not make a firm prohibition but makes variation from the policy a case-by-case determination. One hundred twenty (120) days advance notification in such cases will normally be required. This restriction on exploratory drilling is intended to apply to all types of activities that would place an obstruction to navigation in the traffic lanes or their buffer zones including but not limited to exploratory drilling for mineral resources, geological studies, servicing of wells, and similar operations.

5. I would appreciate your thoughts on the two proposed solutions in paragraph 2.


H. W. Parker

Encl: (1) SSF Coordinates

Copy to:

COMDT (G-WLE-4)

COMDT G-WEP-7)

CCGDTWELVE(m)

BLM, Los Angeles

USCG, Los Angeles

Shipping Safety Fairway Coordinates

1. Shipping Safety Fairways defined without buffers:

a. Southbound lane extension:

1.	34°	18'	12" N	120°	31'	00" W
2.	34°	22'	30" N	120°	50'	16" W
3.	34°	23'	27" N	120°	49'	55" W
4.	34°	19'	12" N	120°	30'	42" W

b. Northbound lane extension:

1.	34°	21'	04" N	120°	30'	05" W
2.	34°	25'	20" N	120°	49'	20" W
3.	34°	26'	21" N	120°	49'	02" W
4.	34°	22'	04" N	120°	29'	44" W

2. Shipping Safety Fairways defined with buffers:

a. Southbound lane extension:

1.	34°	17'	58" N	120°	31'	05" W
2.	34°	22'	16" N	120°	50'	21" W
3.	34°	23'	41" N	120°	49'	50" W
4.	34°	19'	26" N	120°	30'	37" W

b. Northbound lane extension:

1.	34°	20'	50" N	120°	30'	10" W
2.	34°	25'	04" N	120°	49'	25" W
3.	34°	26'	35" N	120°	48'	57" W
4.	34°	22'	18" N	120°	29'	39" W

Responses To:

United States Coast Guard

Section VIII.A.11 has been expanded to include the proposed shipping safety fairways (SSF) on the Western terminus of the Santa Barbara Channel.

PRODUCTION DEPARTMENT
WESTERN DIVISION

~~ATTN: KDD~~
ENVIRONMENTAL CONSERVATION MANAGER

November 16, 1978

Proposed Lease Stipulations
Lease Sale 48

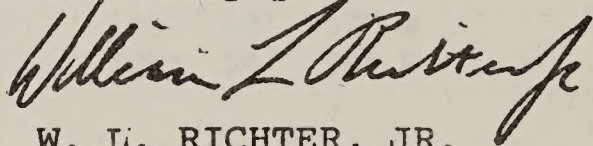
Mr. William Grant, Manager
Pacific OCS Office
Bureau of Land Management
300 North Los Angeles Street, Room 7127
Los Angeles, California 90012

Dear Mr. Grant:

At the Lease Sale 48 Draft EIS hearing in Santa Barbara on October 23, the County of Santa Barbara suggested that lease stipulations be included in the DES. Overall, our company believes that these stipulations are unnecessary and redundant in view of the current law and regulations governing exploration and production activities on the OCS. The bases for reaching this conclusion are presented in Attachment 1.

Please advise if you have any questions on these arguments.

Sincerely yours,



W. L. RICHTER, JR.
Environmental Conservation
Manager

MAR/paj
Attachment

ATTACHMENT 1

COMMENTS ON PROPOSED LEASE STIPULATIONS FOR LEASE SALE 48

1. Environmental Training Programs:

Revised USGS OCS Order No. 8 specifically requires employee orientation, motivation, and training programs for personnel working offshore. Included are training of personnel in various operational aspects of their functions, as well as a program to instill in each individual working offshore a conscious desire to achieve safe and pollution-free operations. In addition, requirements have been set forth (OCS Order No. 2 and GSS-OCS-T1) whereby offshore drilling personnel must complete a strict USGS-approved course in well control equipment and techniques, pass a test, and be certified before assignment to OCS drill sites.

2. Transportation Plan:

The existing USGS regulations require an operator to include a transportation plan in his Plan of Development. Approval of the transportation plan by the USGS is not given unless it is environmentally sound.

Contained in USGS 30 CFR 252 entitled "Oil and Gas Information Program," is a provision that requires the Director of the USGS to submit a Summary Report to states affected by OCS development. This report is designed to assist the states in planning near-shore and onshore impacts of potential OCS oil and gas development and production. Among the information included in the report are methods of transportation to be used, including pipelines, and approximate location of routes to be followed. By means of the Summary Report, states will be able to comment on the transportation routes proposed.

It is not practical to mandate that oil and gas be moved in the most environmentally sound manner. Economics and technology also play important roles in determining the most feasible method of transporting oil and gas. For example, it may not be technically and economically feasible to lay lengthy pipelines in many of the deepwater areas of Santa Barbara Channel.

Use of a proposed onshore pipeline system should be required only if it is economically feasible and environmentally preferred over other transportation alternatives during the life of the particular oil and/or gas development, and if permits and approvals can be obtained for constructing such a pipeline.

3. Unitization and Consolidation:

The OCS Lands Act provides for lessees to unitize, and such provisions are included in OCS lease agreements. When technically and economically feasible, and where a conservation benefit will result, it is often the practice to unitize -- which is what has occurred for most of the acreage leased in the Santa Barbara Channel. Operators do unitize when there is a geological justification to do so. This protects the correlative rights and permits development of a large area under one plan. It eliminates drilling of unnecessary wells. Industry has attempted to consolidate onshore operations in development of the SBC, e.g., Exxon locating within Shell Capitan marine terminal area; Mobile and Sun locating at Rincon Point; Chevron, ARCO and Exxon at Carpinteria; ARCO and Exxon joint use of Ellwood Pier. Also, industry has worked within the framework of the County's Oil Policy and General Plan for onshore storage and marine terminal sites. Further, industry has worked cooperatively with the local Coastal Zone Planning groups in identifying preferred onshore sites along the coast as processing areas for future offshore oil and gas development.

4. Geological Hazards:

The U.S. Geological Survey already requires geological hazard studies, as outlined in the March 1, 1977, Notice to Lessees 77-2 (NTL-77-2). Prior to approving proposals to conduct exploratory drilling operations, the USGS requires an extensive hazard survey of all areas in order to investigate potential hazards in the shallow drilling phase of these operations. When jack-up equipment is to be used, an in-depth geotechnical review evaluation is required, which includes seismicity studies, soil analyses, slope stability, and faulting.

The USGS has proposed additional NTL's which require lessees to perform extensive geological hazard studies on development site areas; particularly, platform locations and pipeline routes. The USGS review includes decisions on potential slumping and faulting, slope stability, seismicity, shallow reservoirs, abnormal pressures, and other factors that may result in disapproval of a proposed platform and/or pipeline location. Although proposed, the USGS is requiring compliance with these requirements until they are adopted in the future. If a hazard is found which makes operations unsafe, the USGS requires the operations to be moved to avoid blowout or spills.

5. Monitoring:

Prior to exploratory and/or development activities on the OCS, the USGS (30 CFR 250.34) requires an approved Plan of Operations. Both the Exploration Plan and the Development Plan require an extensive Environmental Report to be submitted concurrently to

the USGS. The Report requires air and water quality information prior to any OCS activity. Meteorological conditions, including storm frequency and magnitude, wind direction and velocity, ambient air quality data, ambient water quality data, ocean currents, water temperatures, and listing of the means, extremes, and averages of each, are required in the Environmental Report. In addition, the Report requires a description of existing monitoring systems that are currently measuring impacts of activities upon the environment in the lease area, together with those additional systems that may be needed to provide accurate recording and reporting of cumulative impacts on the environment.

6. Development of Natural Gas:

Industry is well aware of the acute need to increase the Nation's natural gas reserves so that demands for clean burning fuel can be met. What is the basis for believing industry is not reporting and developing both oil and gas discoveries as rapidly as possible? The Securities and Exchange Commission requires that industry report discoveries as quickly as they are confirmed. The major deterrent to discovering and developing additional gas (and oil) reserves has been delay due to: 1) frequent postponements in scheduling OCS lease sales, 2) court action against exploratory drilling once leases are granted (Baltimore Canyon area on Atlantic OCS), and 3) lengthy delays in obtaining state and local government agency permits for treating facilities once a field is discovered. Further, the National Research Council of the National Academy of Sciences disproved allegations made by the Federal Government that OCS operators in the Gulf of Mexico were withholding gas production during the cold winter of 1976-77. These events show that oil and gas companies develop their reserves in a prudent manner.

7. OS&T:

It is not reasonable to force industry to process oil/gas onshore with no other processing alternative should permit restrictions result in economic hardships on the operator, such that the offshore reserves are not developed. The OS&T was not Exxon's preferred plan for storing and treating crude oil and was only utilized as an alternative when conditions for transporting crude to market became so onerous that Exxon had to exercise this option. In areas where lack of pipeline technology may preclude transportation to shore, an OS&T may be the only practical and economic alternative.

8. Spill Containment and Cleanup:

Under OCS Order No. 7, each operator must file an emergency action plan with the USGS for controlling and removing an oil spill should it occur. "Standby pollution control equipment shall be maintained at each operation or shall be immediately available to each operator at an onshore location. This equipment (containment booms, skimming apparatus, and chemical dispersants) shall be the most effective available resulting from

the current state of pollution control and removal research and development efforts." Also, the Order states that the equipment will be regularly inspected and maintained in good condition for use. All SBC operators have oil spill cleanup equipment available on the platforms and at various onshore sites. In addition, Clean Seas, Inc. has a substantial inventory of equipment available to respond for oil spill cleanup and control.

9. Biological Significance and Cultural Resources:

- &
10. As discussed in Item 5, new USGS regulations (30 CFR 250.34) require that Exploration and Development/Production Environmental Reports be submitted to the USGS. These reports must contain descriptions of environmentally sensitive or potentially hazardous areas which might be affected by the proposed activities, and a description of the alternatives considered and the actions to be taken to preserve or protect such areas. Such areas include those of cultural, biological, archeological, or geological (seismic) significance, and areas of particular concern designated by affected states.

There has been no showing that oil and gas operations adversely affect the marine biology. In fact, the evidence all points to a contrary conclusion, i.e., that the platforms encourage greater marine life.

11. Onshore Activities:

Environmental Reports required with Exploration and Development Plans (30 CFR 250.34) must identify location, size, and number of onshore storage facilities, their land requirements and related rights-of-way and easements. Greater detail relating to onshore activities is required in the Development/Production Report. For example, the number, timing, and duration of employment of persons who will be engaged in onshore development and transportation activities, and offshore development and production must be estimated. In addition, the approximate number of local personnel required for development activities classified by major skills or crafts must be assessed. Also, the amount of energy and resources to be used or consumed (electricity, water, etc.) within an affected state will be included in the Report.

12. Protection of Sea Bird and Mammal Rookeries:

Environmental Reports for Exploratory and Development/Production operations would address the protection of bird and mammal rookeries. An arbitrary three-mile buffer zone around rookeries without consideration to the environmental impact or activity

would have on the site is not reasonable. The amount of protection afforded a rookery should be dictated by the impact an activity is expected to impose, which would be decided on a case by case basis.

13. Cooperation with Local Government:

Industry is already well aware of the environmental and economic concerns of Channel counties and has attempted to cooperate in developing offshore leases. Onshore facilities are subject to extensive review by County (Planning Commission, APCD, Dept. of Environmental Resources, and the Board of Supervisors). When a development plan is submitted to the DOI for approval, it is also submitted to the Governor whose staff considers County concerns in its review. Industry is currently cooperating with the County in the development of the Local Coastal Program and in the Joint Industry/Government Pipeline Working Group.

However, there are county groups which have the publically-stated purpose of stopping OCS development. Such attitudes make full cooperation a difficult challenge.

14. Air Pollution:

Neither the EPA nor the local APCD has legal authority to require an air permit for facilities located on the OCS. Review of the air pollution impacts of an OCS development is the responsibility of the Department of the Interior as clearly set forth in the recently passed OCS Land Act Amendments of 1978. The determination of what, if any, emissions control equipment is required depends on the extent that OCS activities significantly affect the air quality of any state.

Response To:

Exxon Company, USA

Comments noted.

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From Conejo Valley
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Extension 4576

November 14, 1978

Grant No. CEIP 78-5
Work Task No. 102
Cost Center No. 323102

Harold R. Martin, Manager
Pacific OCS Office
U.S. Department of the Interior
Bureau of Land Management
300 North Los Angeles Street, Room 7127
Los Angeles, CA 90012

Dear Mr. Martin:

Subject: Draft Environmental Statement on OCS Sale No. 48

The subject Draft Environmental Statement (DES) has been reviewed by Ventura County and specific comments are attached for your action. While there appear to be several technical problems with the document, the two major inadequacies are the document's failure to present the information in a manner easily understood by the public and the failure to adequately acknowledge the ongoing planning efforts of the Joint Industry/Government Pipeline Working Group, of which Ventura County is a participant. These two major concerns are discussed below and other specific comments are attached:

1. Lack of an Adequate Executive Summary

[1]

At a March 7, 1978 meeting between your office and representatives of state and local governments, the need for an executive summary of the DES was repeatedly emphasized. In a March 28, 1978 letter from Monte Jordan, Pacific OCS Office Environmental Assessment Manager, to Allen Lind, State Office of Planning and Research, your office agreed to this request and stated that, "We intend to write it in a style easily understood by the lay public as you suggest." In light of your office's statement, it is disappointing that the DES did not include the promised executive summary. As published, the DES contains over 1,600 pages of very technical information that must be entirely read in order to fully understand the potential consequences of the proposed lease sale.

[2]

2. Failure to Adequately Consider Ongoing Efforts of the Joint Industry/
Government Pipeline Working Group

As you are aware, Ventura County is a participant in the Joint Industry/Government Pipeline Working Group. The purpose of this group is to evaluate different onshore pipeline routing options, economics,

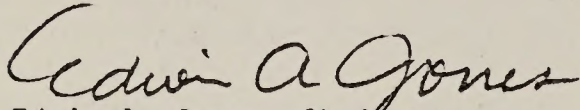
Letter - Harold R. Martin
November 14, 1978
Page 2

financing, engineering and construction possibilities for transporting California offshore crude oil produced in or transported through the Santa Barbara Channel. The proposed mitigation measures do not adequately address the onshore pipeline which is an attempt by local government to resolve a serious local problem caused by the action of the Federal Government.

Thank you for the opportunity to review the subject DES. Additional specific comments on the document are attached.

If you have any questions, please contact M. L. Koester at (805) 654-2661.

Sincerely,



Edwin A. Jones, Chairman

EAJ:db

Attachment

cc: Board of Supervisors
Robert A. Kallman, Chairman
Santa Barbara County Board of Supervisors
Kevin Smith, California Coastal Commission
Mari Collins, California Coastal Commission

COMMENTS ON DRAFT ENVIRONMENTAL STATEMENT ON OCS SALE NO. 48

PLANNING DIVISION COMMENTS

[3] Pages 5-9

One of the main concerns of coastal communities with an offshore lease sale is its induced demand for onshore facilities. The DES makes certain assumptions regarding the types and amount of onshore facilities which could be induced by the proposed OCS Sale No. 48 (these are summarized in Table I.A.2-3). However, the DES does not explain the basis for arriving at these assumptions and certain assumptions seem questionable. For example, the DES assumes that there will be no new onshore production treatment facilities as a result of the OCS Sale No. 48, presumably on the basis that there is sufficient capacity available in existing onshore facilities such as Mobil-Rincon. However, the availability of existing onshore treatment capacity does not always preclude demand for new facilities as is evidenced by Union Oil's current proposal to build a new onshore processing facility near Mandalay Beach to process production from the Hueneme OCS Unit.

[4] Page 34

The last paragraph states that "The consistency portion of the [California Coastal Zone Management Program] is currently being contested by the Western Oil and Gas Association in Federal Court." This statement has become outdated by the recent action of the U.S. District Court, on August 31, 1978, which upheld the approval of the program by the Secretary of Commerce, thus initiating the requirement for consistency. The Final Environmental Statement should make note of this fact as well as methods that the Department of Interior will utilize to insure consistency of OCS Sale No. 48, and its related activities, with the California Coastal Zone Management Program.

[5] Page 44

The list of related projects which were included in the cumulative assessment does not make reference to Chevron's proposal to develop the Santa Clara OCS Unit and Union Oil's proposal to develop the Hueneme OCS Unit, including a new onshore processing plant at Mandalay Beach. Both of these proposals are ongoing and are of major significance to Ventura County. These should be specifically addressed in the cumulative impact assessment of Santa Barbara Channel activities.

[6] Pages 529-534

The section entitled "Offshore Oil and Gas Production" makes no reference to Union Oil's current proposal to develop the Hueneme OCS Unit. Union Oil plans to set a 15-slot platform in Federal Lease OCS P-0202 in December, 1979. Peak production rate for the field is estimated by Union to be 6,450 barrels of oil per day in September, 1980, which is proposed to be processed at a new onshore treatment plant at Mandalay Beach.

Pages 534-535

- [7] The USA Petrochem refinery is indicated to have a capacity of 15,000 barrels of oil per day. However, the company is currently expanding the capacity of the refinery to 30,000 barrels of oil per day with the addition of a desulfurization unit.

Pages 626 and 647

- [8] On page 626, it states that nine platforms will be required to develop the Tanner-Cortes area, based on most probable resource estimates, while on page 647 it states that 13 platforms will be required. This discrepancy needs to be clarified, particularly as to which figure was actually utilized in the DES.

Pages 1020-1034

- [9] The air emissions estimates for OCS Sale No. 48 activities do not appear to have included the indirect emissions from onshore population growth induced by the lease sale. For example, Table III E.8-1 on page 1139 indicates that Ventura and Santa Barbara Counties will receive over 21,000 extra persons by 1986, as the result of OCS Sale No. 48, over and above the population increase that would have occurred without the sale. This amount of additional population growth can have a significant adverse impact on air quality in the two counties and must be included in the air quality impact modeling projections.

Page 1138

- [10] This section assumes that OCS Sale No. 48 will induce 1/2 acre of land to be urbanized for every person attracted to the county. This generates about 8,788 additional acres of urban development (13.7 square miles) from Lease Sale No. 48 and 27,973 acres of urban development (43.7 square miles) from cumulative OCS activity. Most of these acres would be on the Oxnard Plain and would represent the amount of prime agricultural land lost due to OCS activity in Ventura County. No real mitigation for this loss is discussed in the DES.

Pages 1186-1192

- [11] Ventura County and its nine cities are currently in the final stages of a two year Regional Land Use Planning Program (RLUP). The population projections developed by RLUP for the County and its cities do not take into account increased OCS activity from OCS Sale No. 48, and all regional and local land use plans that have been developed are tied to the RLUP population projections. A major concern of Ventura County is that OCS Sale No. 48 is part of the cumulative process of OCS activity which will attract about 55,946 people to Ventura County (page 1192) over and above the RLUP projections. The problem is that this induced population increase will impact a relatively small area and the magnitude of the increase was not anticipated. Assuming that 80 percent of this population increase settles in the cities of Ventura, Oxnard, Port Hueneme, and Camarillo, these areas would absorb 44,756 additional people in the next seven years. The RLUP projections assume only an increase of 54,388 people in these areas, during that period, without the lease sale. Thus OCS related activity would increase growth in these areas from 7,770 people per

year to 14,163 people per year, an increase of 82 percent. The cities and the county have not prepared for the unexpected magnitude of this induced growth.

- [12] The infrastructure in the coastal communities of Ventura County is not being designed to handle OCS Sale No. 48 induced population growth as quickly as the DES projects this growth to happen. The five year capital improvement programs in the communities are geared toward only a 54,000 population increase, not 98,000 as would occur with Sale No. 48, and additional required facilities would need to be planned for now. Schools in particular would be impacted as all of the affected districts currently have all or some of their schools operating at capacity. If the population increase forecast by the DES is correct, it negates the RLUP projections for these areas. As the cities are committed to RLUP projections until revised in 1980, they may have difficulty obtaining federal planning assistance to plan for the needed facilities, and they probably could not obtain construction grants until after RLUP is modified. Since many of the new OCS workers will arrive before 1986, it is unlikely that all of the required infrastructure (particularly schools) will be ready in time.

- [13] The DES (pages 1187, 1203, 1194) indicates that direct OCS Sale No. 48 employment should peak in 1985. However, population and indirect employment will not peak until about five years later in 1990. At that point, direct employment would only be 262 jobs or 22.4 percent of the peak of 1,167. Although some delay in the peaks for population and indirect employment could be expected, such a delay of five years, particularly when direct employment drops so rapidly, is surprising. According to the tables, in 1990 each direct job from OCS Sale No. 48 will be supporting 68 persons and 23.8 indirect jobs. Either the tables are mislabeled or the model appears to be in error.

- [14] If some large lag in population and employment peaks is correct, however, there may be a large employment problem on the downhill side of the curve (1986-2000). Page 1191 assumes that 1/3 of the in-migrants attracted to Ventura County will remain here permanently. If this assumption is reasonable, then it is probably reasonable to assume that at least 1/3 of all direct and indirect population and job holders associated with OCS Sale No. 48 would remain. In fact, page 1187 assumes that 50.7 percent of OCS Sale No. 48 induced population would remain beyond 2000 although less than 22 percent of the direct jobs are assumed to be available (page 1203). While the oil related professions would probably leave, most store clerks, school teachers, etc. would probably remain. However, their original economic support, OCS activity, would be substantially reduced. Thus until other primary jobs become available, these formerly oil related jobs may be difficult to maintain. The whole issue of unemployment on the downhill side of the employment slope is complex, potentially important, and totally ignored in the DES.

Pages 1211-1218

- [15] This section indicates that state and local governments in Ventura County should show a surplus of OCS Sale No. 48 related revenues minus expenses in 1980, changing to net deficits from then to the year 2000 (these figures apparently do not consider the impacts of Proposition 13 and as such are probably under-estimating the deficits). The DES does not discuss cumulative OCS deficits, or total the deficits from 1980 to 2000. Also, there was no mitigation for the deficits discussed in the DES.

- [16] Stipulation No. 6 should be clarified as to whether it is intended to apply only to pipelines from offshore production areas to onshore or whether it also applies to onshore pipelines to refining centers as well.

Visual No. 1

- [17] This map, entitled "Lease Status and Pipeline Transportation," contains the following errors related to Ventura County:

1. The proposed Deer Canyon onshore LNG site is not located in Los Angeles County near Malibu, as depicted, but is located on the south coast of Ventura County.
2. Although referenced in the DES, the USA Petrochem refinery is not depicted on the map.
3. Although very important elements of the Joint Industry/Government Pipeline Working Group's onshore pipeline feasibility studies, neither the ARCO pipeline between Ventura and Cuyama nor the Mobil pipeline on the Rincon is depicted on the map.

AIR POLLUTION CONTROL DISTRICT COMMENTS:

- [18] The southern portion of Ventura County has been designated by the California Air Resources Board and the Environmental Protection Agency as a nonattainment area for both the oxidant (ozone) and the total suspended particulate matter ambient air quality standards. As a result, the Ventura County Air Pollution Control District (APCD) is preparing an Air Quality Management Plan (AQMP) to indicate the steps that need to be taken in the County to attain and maintain the standards by the statutory deadline of 1987. The AQMP is being prepared based on the assumption that areas adjacent to the County which may impact the air quality of the county will similarly take the steps necessary to attain the standards by 1987. In spite of the severe economic sanctions that may be imposed on any area that fails to comply with the Clean Air Act, as amended, information concerning the nonattainment status of Ventura County is omitted from the DES on OCS Sale No. 48.

- [19] The air quality impact analysis in the DES indicates that the major impacts on oxidant (ozone) levels due to Lease Sale No. 48 activities will occur in Ventura County. The photochemical modeling techniques used in the analysis have been criticized by several experts as understating the impact on oxidant levels. Nonetheless, the various scenarios modeled in the report all demonstrate a degradation of oxidant levels in Ventura County ranging from two percent to six percent. Thus, the impact on the oxidant levels in Ventura County—already in excess of the ambient air quality standards—will be significant. The statement in the summary of the DES that there will be "minor air quality degradation" and the statement on page 1271 that the sale "could delay the attainment of the federal standards" do not accurately reflect the significance of the impact of the sale on air quality in Ventura County.

[20] Because of the significance of the impact of the sale on air quality, the section of the DES on mitigation measures for the air quality impacts needs to be modified and expanded. The DES correctly indicates that the OCS Lands Act amendments require the Secretary of the Interior to adopt regulations to insure compliance with the national ambient air quality standards, pursuant to the Clean Air Act, to the extent that OCS activities significantly affect the air quality of any state. The DES, however, does not indicate that the Environmental Protection Agency has also made a determination that the Clean Air Act, as amended, and regulations promulgated thereunder, apply to activities on the OCS when such activities could affect the air quality of an adjacent state. EPA's position should be part of the DES as the conference report on the OCS Lands Act amendments clearly states that the conferees "do not intend to supersede the Clean Air Act or the responsibilities of the EPA Administrator."

[21] The mitigation measures section of the DES should not only indicate that the Secretary of the Interior and the EPA Administrator have the responsibility for adopting regulations to insure compliance with the Clean Air Act, but also should discuss the probable regulations and how they might be implemented. It seems reasonable—as suggested in the proposed stipulations submitted by Santa Barbara County—that all sources of air pollutants associated with the sale be required to install the Best Available Control Technology (BACT). It also seems reasonable to expect that sufficient tradeoffs will be required for all new sources of air pollution to insure reasonable progress toward attainment and maintenance of the air quality standards. The mitigation measures section of the DES should, therefore, discuss BACT and the feasibility and availability of tradeoffs for all sources associated with the sale.

[22] The emission of hydrocarbons resulting from loading crude oil into tankers and barges is the biggest source of air pollutants identified in the DES. The mitigation measures section should include, therefore, a thorough discussion of measures that may be employed to mitigate this emission source. Such measures include: 1) utilization of the existing onshore pipeline systems, 2) construction of new onshore pipelines, and/or 3) installation of vapor recovery systems on the tankers or barges.

[23] The DES contains only a brief description of existing onshore pipelines and the impact of Lease Sale No. 48 on those pipelines. The discussion should be greatly expanded - particularly for Ventura County because of the amount of OCS crude oil projected to come ashore in the county. The discussion should include the capacities of the existing lines and production projections for the onshore and tidelands fields, which are served by the existing lines, as well as the OCS crude oil production projections.

[24] The DES contains only a cursory discussion of the feasibility of constructing a new onshore pipeline. The discussion should be rewritten to be consistent with the analysis being carried out by the Joint Industry/Government Pipeline Working Group. If a cost estimate for the pipeline is appropriate, its cost should be compared to the cost of other comparable mitigation measures—for example, the operating cost of a fleet of tankers together with the cost of installing vapor recovery systems on those tankers.

[25] Finally, the mitigation measures sections should discuss the feasibility of installing vapor recovery systems on tankers. The proposal made by Exxon to

use a dedicated tanker with a vapor recovery system to handle crude oil for the Santa Ynez unit indicates that such systems can be available for use in a time frame appropriate for the proposed developments under Lease Sale No. 48

MW:r83s

Responses To:

County of Ventura

- [1] Although an Executive Summary as a separate document has not been published, a summary of impacts has been provided for each section in the environmental statement.
- [2] A member from the BLM, Pacific OCS Office, has attended a majority of the Pipeline Working Group meetings at Santa Barbara. For the Onshore Pipeline from Ventura to Los Angeles (Section III.F.5), the estimated onshore pipeline route and cost was based on Hallinger's Preliminary Report. For the FES the most recent pipeline cost indicated in Hallinger Engineers Executive Summary Report, 10-6-78, have been used.
- [3] Proposed OCS Sale No. 48 is part of the continuing leasing activity in Federal waters. The existing Federal leases, development was analyzed in FES 76-13 prepared by the U.S. Geological Survey. Several new onshore facilities were assumed in that analysis. Proposed Sale No. 48 development would use some of those facilities especially if the same operator was to lease tracts adjacent to existing leases and thereby combine his development for existing leases with proposed Sale No. 48 leases.
- [4] This section has been updated.
- [5] The development of existing Federal leases is addressed in Section I.E.1. They have been included as cumulative impacts.
- [6] This section has been augmented.
- [7] Current expansion has been added to Table II.G.2.d.ii-2.
- [8] The text has been corrected. The 13 platforms includes four pipeline connection platforms. The nine platforms referred to in Table III.A-5 indicates only production platforms. The 13 platform figure was used in the analysis.
- [9] For the photochemical modeling runs, hydrocarbon emissions from highway vehicles and other area sources were assumed to remain constant from the base year to 1986. The decrease from the motor vehicle control program was assumed to be accompanied by an equivalent increase from indirect sources associated with Sale 48. Actually, this technique overestimated the contribution of indirect sources (population growth) even in Ventura County.

- [10] The location of urban development is controlled by local government and the Coastal Commission in the coastal zone. All onshore direct and secondarily induced development would therefore be controlled by local land use plans or coastal plans (LCP). These plans will mitigate the impacts of population growth and additional needs for housing.
- [11] The Coastal Energy Impact Fund established by the Coastal Zone Management Act of 1972 as amended provides Federal assistance to ameliorate the impacts of energy related development in the coastal zone. Funds would be made available according to a formula including oil and gas brought ashore, new employment in OCS related activity and acreage leased.
- [12] Same as [11] above.
- [13] The Harris Model indicates that the availability of relatively cheap fuel sources, i.e., oil and gas, will induce new industries and, therefore, jobs and employment to be attracted to Ventura County. These inducements are related to energy availability and the cost of that energy. The resulting secondarily-induced economic activity is not related to the level of direct employment but rather to the availability of cheap energy that is reliable and available in the long-term.
- [14] Same as [13] above.
- [15] This section has been rewritten to reflect Proposition 13. The Harris Model outputs were displayed on a 5-year interval basis in addition to the peak year 1986. Cumulative deficits could be estimated but no exact figures could be derived from the data. Refer to response [11] for mitigation.
- [16] Federal lease stipulations can only be applied to areas of Federal control.
- [17] See errata sheet for Visual No. 1.
- [18] Discussion of Attainment Plans and Sale 48 have been added to Final ES.
- [19] Impacts that Sale 48 have on Attainment Plans have been added to summary sections.
- [20] The mitigation measures section has been expanded. See Section IV.D.8.
- [21-22] See response [20] above.

- [23] Given that existing leases in the Santa Barbara Channel and Sale No. 35 leases are developed as projected, OCS Sale No. 48 crude would not use the existing pipeline system. The oil would be tankered or barged from Ventura to San Francisco and Los Angeles. The pipeline alternative from Ventura to Los Angeles is discussed in Section III.F.5.
- [24] The discussion of an alternative onshore pipeline has been expanded.
- [25] See response [20] above.

TO: Bureau of Land Management, Pacific OCS Office, Los Angeles California

Comments for Consideration at Public Hearings on proposed OCS Lease Sale #48

COMMENTS OF THE CALIFORNIA COASTAL COMMISSION ON PROPOSED OCS LEASE SALE #48
ADOPTED AT THE OCTOBER 18, 1978 MEETING OF THE COMMISSION

The California Coastal Commission presents the following recommendations and comments to the Department of Interior Bureau of Land Management on its Draft Environmental Statement on proposed OCS Lease Sale #48. These recommendations are preliminary and are directed toward BLM's revision of the Statement to include analysis of these recommendations. Final recommendations on the lease sale will be made after the Final Environmental Statement is published in January 1979.

[1] 1. Air Quality.

Offshore air pollutant emissions from petroleum developments should be treated in the same manner as onshore emissions. The uncertainty in Environmental Protection Agency and Department of Interior regulation of offshore air pollutant emissions must be resolved by the time these tracts are offered for sale in June 1979. Serious air quality protection problems could result from OCS operations offshore; with no strict responsibilities for regulating offshore emissions, including best available emissions control technology and trade off requirements for emissions affecting onshore areas that have not attained air quality standards, state and local governments cannot adequately plan for the impacts resulting from OCS development. The Commission intends to recommend that no nearshore tracts in the Lease Sale #48 area be offered until air quality regulations treat OCS emissions the same as emissions controlled by California's air pollution control districts.

[2] 2. Tract Deletions

The Commission provides this preliminary set of tract deletion recommendations solely to serve as a scenario to be analyzed in the Final Environmental Statement. The reasons for deletions fall into the following five categories:

A. Navigation Safety.

The Commission recommends that no tracts be leased within the Precautionary Area offshore the Ports of Los Angeles and Long Beach to protect vessel traffic safety in this area; three tracts are affected by this recommendation. The Commission further recommends that leases of tracts located within 500 meters of vessel traffic lanes in the Santa Barbara Channel and the Gulf of Santa Catalina be offered for sale only with the conditions that no fixed structures be permitted within these area 55 tracts are affected by this recommendation.

The presence of drilling structures and production platforms in the traffic lanes and service boats crossing the shipping lanes to service OCS facilities, pose a potential hazard to vessel traffic due to the possibility of collision or ramming between the vessels and these structures; this hazard is greater within the established Precautionary Area where the two vessel traffic lane systems converge because of the continuous concentration of commercial ship traffic in this area.

B. Marine and Coastal Resources.

The Commission recommends to BLM that 21 tracts be deleted from the lease sale to protect marine and coastal resources on the northern side of Santa Rosa, Santa Cruz, and Anacapa Islands, and on all tracts in the vicinity of Santa Barbara Island. These areas encompass major breeding and foraging areas, as well as traditional migratory pathways, for seabirds and pinnipeds. A minimum buffer of six miles is recommended to protect these resources from the disturbances and disruptions from OCS development activities.

C. State Oil and Gas Sanctuaries.

The Commission recommends to BLM that it consider no leasing within 3 miles of State-established Oil and Gas Sanctuaries located in the Lease Sale #48 area; 22 tracts are affected by this recommendation. Development of tracts adjacent to the State Sanctuaries could cause drainage of State-owned petroleum reserves, forcing a State drainage sale or compensation agreement in place of offering the state lease for sale. Although information is not currently available on the extent of drainage that could occur, there is no doubt that drainage can occur. Therefore, the Commission recommends a 3 mile buffer to insure the integrity of the State-owned reserves.

D. Development Alternatives.

The Commission recommends that 5 tracts in the Santa Barbara Island block be deleted from the lease sale because of unacceptable development alternatives for transporting petroleum from this area. The petroleum estimates for the Santa Barbara Island block are low, so that offshore oil storage and treatment and an offshore marine oil terminal would probably be the most feasible method of transportation. Such construction and vessel activity would cause disturbances to the significant marine resources around the National Monument Island.

E. Offshore Liquefied Natural Gas Terminal.

The Commission recommends that a portion of one OCS tract identified by the Commission as the most appropriate site for a possible offshore liquefied natural gas terminal be deleted from the lease sale. This Ventura Flats site should be left unleased to preserve the option of considering it for an LNG terminal should one be needed.

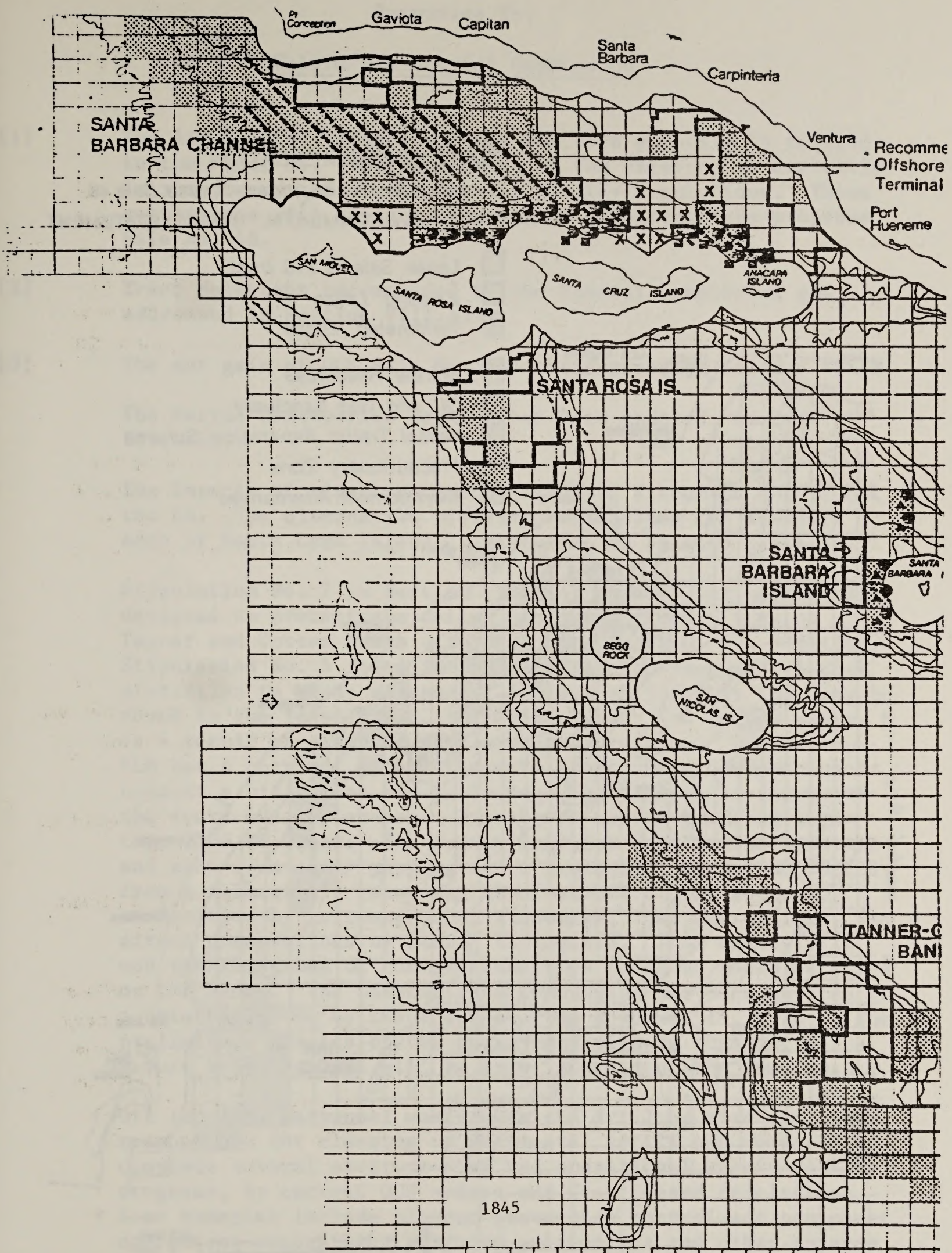
[3] 3. Comments.

Energy Conservation. The first priority in considering energy developments is whether conservation can replace the need for the development. In addition, the Commission recommends to BLM that it consider in its Final Environmental Statement the net energy gain from this OCS development

Marine Sanctuaries. BLM should consider in the Final Environmental Statement the most current status of the Department of Commerce Marine Sanctuary program.

Pipeline Construction. BLM should consider in the Final Environmental Statement the environmental impacts of pipeline construction near the Channel Islands.









Mitigation Measures. Mitigation measures should be taken to protect the unique flora and fauna of the Tanner-Cortes Banks. The Interior Department should survey the Banks area to determine the locations of coral communities and other valuable resources before permitting drilling or emplacement of bottom-fixed structures on the #48 tracts. In addition, an environmental training program for oil industry personnel should be instituted with emphasis on protection of rocky intertidal organisms, kelp beds, and fisheries in the event of an oil spill.

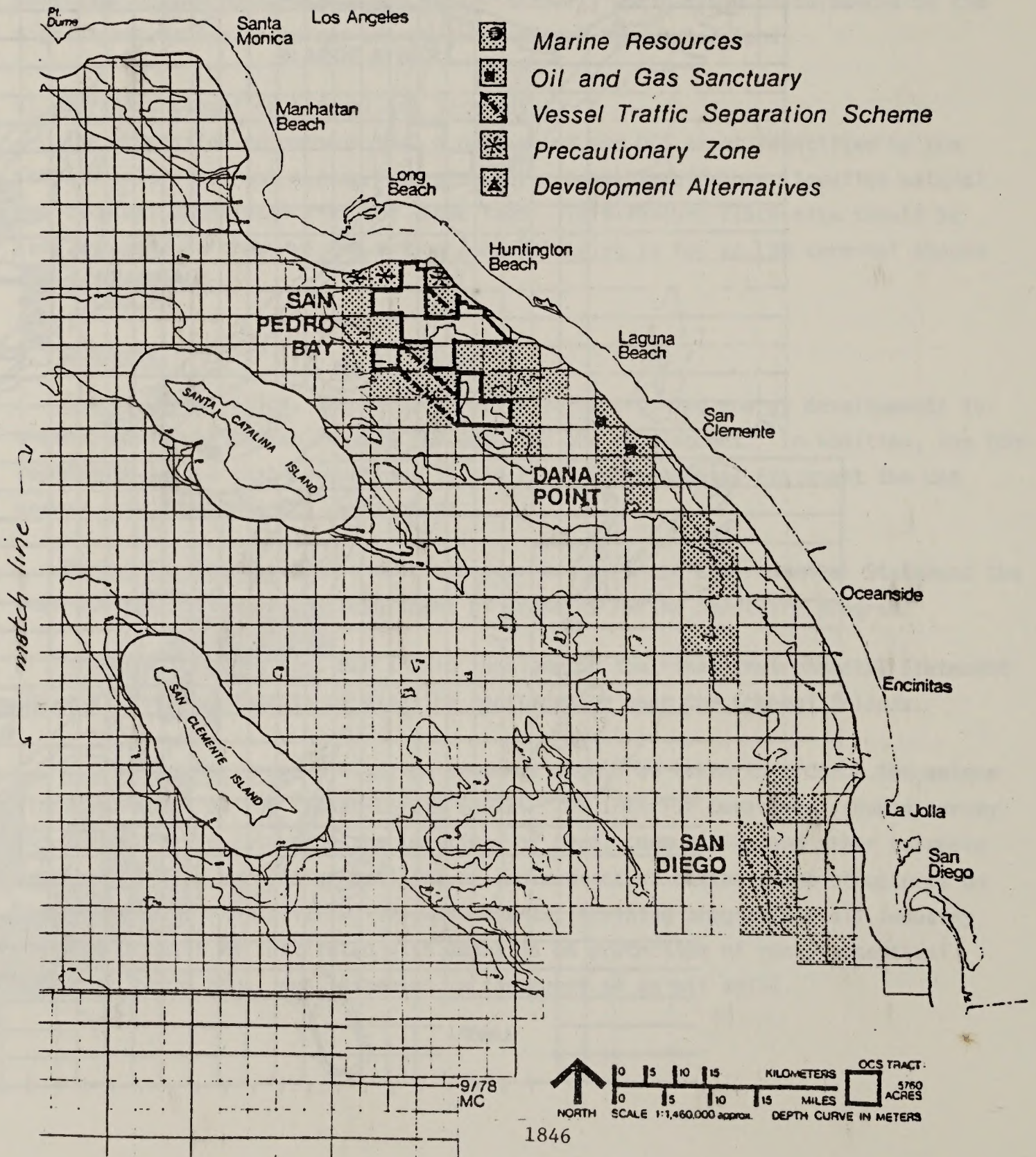


STAFF RECOMMENDATION

For deletion or conditions - Lease Sale 48

DRAFT ENVIRONMENTAL IMPACT STATEMENT

-  Lease Sale 48 EIS tract
-  Existing Lease
-  Terminated Lease
-  Marine Resources
-  Oil and Gas Sanctuary
-  Vessel Traffic Separation Scheme
-  Precautionary Zone
-  Development Alternatives



Responses To:

California Coastal Commission

- [1] The Air Quality impacts section has been extensively revised in the Final ES. The Department of the Interior is currently in the process of developing air quality regulations. These regulations will apply to any leases resulting from proposed Sale No. 48.
- [2] Tract deletions recommended by the Coastal Commission are addressed in Section VIII.A.13.
- [3] The net gain of OCS Sale No. 48 is discussed in Section VII.B.

The Marine Sanctuaries section has been updated, Section III.C.10.

The impacts of pipeline construction are discussed throughout the ES. The alternative pipeline route along the southern edge of Santa Cruz Island is discussed in Section III.F.8.

Stipulation No. 7 in Section IV.B. of the FES was specifically designed to protect the unique biological communities on Tanner and Cortes Banks within the 80m isobath. In addition, Stipulation No. 5 found in the same section provides further protection to areas of special biological interest that may be found in the lease areas, including Tanner and Cortes Banks, as a result of study or development operations. Currently, BLM has a contract with Interstate Electronics Corporation to conduct a biological and geological reconnaissance survey of the rocky outcrop areas on Tanner and Cortes Banks in less than 150m of water. The survey includes detailed bathymetric and side-scan sonar mapping and a biological survey conducted from a submersible recording observations of the bottom communities by bottom photos, videotape, 16mm movie films, and direct observations by marine biologists. This survey will map the locations of coral communities found on rocky outcrops on the Banks. The Coastal Zone Commission has been invited to a briefing given by the contractor on November 15, 1978 on the preliminary results of the survey and will be invited to future briefings and will be kept informed of the results.

Oil industry personnel working on the drilling rigs and those responsible for cleaning up accidental spills are required to complete several environmental and operational safety programs, by current OCS orders and Coast Guard regulations. Some examples include blowout prevention control and equipment operation, recognizing hydrogen sulfide gas and other hazards during drilling operations, emergency escape procedure training for drilling accidents, training platform personnel

to deploy oil spill booms and operate small skimmers in the event of a small spill, and programs to train platform personnel to meet the requirements of EPA NPEDS permits. Oilspill cleanup teams, including the oil spill cooperatives, attend schools to train them in the biological effects of oil spills and options to consider when cleaning up various habitats.



United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE
WASHINGTON, D. C. 20240

IN REPLY REFER TO: 732

NOV 2 1978

Memorandum

To: Director, Bureau of Land Management

From: Director, Heritage Conservation and Recreation Service

Subject: Draft Environmental Statement for Proposed 1979 Outer Continental Shelf Oil and Gas Lease Sale #48, Offshore Southern California (DES-78/36)

As requested, we have reviewed the subject statement and have the following comments to offer.

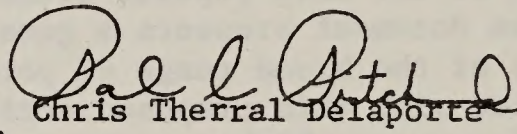
The four-volume draft environmental statement provides a good county-by-county compilation of the majority of recreation areas along the Southern California coastline and a good descriptive overview of the more popular offshore recreation opportunities. Also, the document presents a generally clear and objective analysis of the broad range of potential recreation impacts associated with this proposed action. We have, however, certain areas of concern which are expressed in the following paragraphs.

The presently proposed OCS lease sale is a continuation of Federal OCS leasing and development in the Southern California Bight; the last OCS lease sale (#35) having occurred in 1975. Public interest requires that the planning process carefully balance the economic and social benefits of potential oil and gas development against the risks of serious environmental damage. The planning process must respect the dynamic relationship between initial Federal leasing decisions and subsequently proposed actions. The State and affected local communities and the concerned public in general must be given the opportunity to play a major advisory role in the management and regulation of OCS developments.

Because of the expanding and cumulative nature of the OCS program and to provide proper perspective to the entire program, we feel it is necessary that this environmental statement more thoroughly address the relationship of this proposal to the overall OCS leasing program in the Southern California Bight. A thorough summary highlighting the current status of past lease sale activities and subsequent developments would be beneficial to understanding the proposed basic facility needs as summarized in Table I.A.2-3 and to providing a better framework for determining the extent to which maximum joint use or multi-company use of existing facilities would be feasible. Supportive efforts should be encouraged to minimize the proliferation of economically and environmentally costly offshore pipelines and storage and treating plants, thereby minimizing conflicts with other coastal and offshore land uses.

The impact sections for shoreline and offshore recreation activities should stress the overall impact of potential decreased desirability of recreation resources along the California shoreline stemming from lease development. We realize that if this proposal is implemented, precise site specific impacts would be more readily identified and addressed beyond the sequential exploratory phase. We will welcome the opportunity to review additional planning assessments as they become available.

Cultural resource concerns appear to be adequately addressed.


for Chris Therral Delaporte

Response To:

Heritage Conservation and Recreation Service

A short discussion of the general reduction in beach desirability has been added to Section III.E.11.



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2711
LOS ANGELES, CALIFORNIA 90053

SPLED-E

7 November 1978

Manager, Pacific OCS Office
Bureau of Land Management
7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

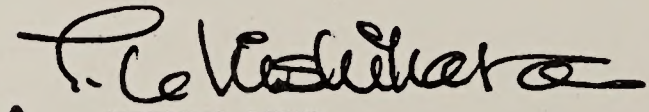
Dear Sir:

This is in response to a letter dated 21 August 1978 from the Bureau of Land Management, Washington, D.C., which requested review and comments on the Draft Environmental Impact Statement for the Proposed Outer Continental Shelf Oil and Gas Lease Sale (OCS Sale #48), Offshore Southern California. The cited letter requested that we send our comments, if any, to your office.

The proposed plan does not conflict with existing or authorized plans of the Corps of Engineers. We have no comments concerning the Environmental Impact Statement for the proposed plan.

Thank you for the opportunity to review and comment on this report.

Sincerely yours,


NORMAN ARNO
Chief, Engineering Division

Response To:

U.S. Army, Los Angeles District, Corps of Engineers

No Response required.



United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VA. 22092

In Reply Refer To:
Mail Stop 760

7 NOV 1978

73E/HW

Memorandum

To: Director, Bureau of Land Management

Through: Assistant Secretary--Energy and Minerals

From: Director, Geological Survey

Subject: Review of draft environmental statement for OCS Sale No. 48,
Offshore Southern California

We have reviewed the subject draft statement as requested in your memorandum of August 21.

- [1] Page 14, sec. 3a, line 6: It is not clear what is meant by "nominated 2,067,355 hectares (5,103.75 hectares (20,160 acres))."
- [2] Page 26, table I.B.8-1: Sale No. 58-A, Gulf of Mexico, should be substituted for Sale No. 54, South Atlantic--Blake Plateau.
- [3] Page 38, sec. 3: Additional geophysical surveys have been conducted by the U.S. Geological Survey. The DES also neglects mention of present BLM funding of the USGS survey for Sale No. 48 under USGS/BLM MOU AA551-1103-15.
- [4] Page 44, sec. E2, line 5: This should read "719 million bbl oil and 997 BCF of gas."
- [5] Page 52, sec. 12, lines 6 and 7: What is the correct reference for the source of these estimates for Sale No. 53?
- [6] Page 58, sec. 2: We suggest that the first sentence should read "Geologic hazards in the OCS are related to seismic activity, stability of the sea-floor, and shallow subsurface phenomena."
- [7] Page 67, sec. b: Tracts containing geologic hazards can be more adequately specified after completion of a geologic hazards analysis by the U.S. Geological Survey.

- [8] Page 61, sec. 3: What are the references for the source of 11.8 BBO and the percentages of rock ages?
- [9] Page 61, sec. 3, line 5: The reference "API, 1975" does not appear under References (p. 1576).
- [10] Page 62, table 11.A.3-1: The reference for the source of this information is Open-File Report 77-593, not Taylor, 1976.
- [11] Page 62, table 11.A.3-2: The figure in the upper right should read "1,805," not "1,085."
- [12] Page 62, table 11.A.3-3: The 95 percent probability for gas should be 2.2 TCF, not 3.2 TCF. Also, these estimates were made by the Resource Appraisal Group of the USGS (Circular 725) and do not appear in Taylor, 1976, as indicated.
- [13] Pages 552 to 571: Each figure on air quality should reflect the appropriate Federal standard. For example, figure 11.H.1-4 would have a horizontal line at .08 ppm (the Federal 1-hour standard for oxidants). Figure 11.H.1-3 would simply indicate the Federal standard of .08 in the explanation. This is needed as a point of comparison and would certainly enhance the reference value and facilitate the use of the figures.
- [14] Page 642, table III. A.2-1: Figures pertinent to pipeline burial given here are not in agreement with figures given in the text on page 643 (last par.). The text gives the length of pipelines to be buried as 68 km. while the table gives figures that add up to 72 km. The text gives the volume of material to be excavated as 18,000 cubic yards, whereas the figures in the table add up to 4,830,000 cubic feet, which is equivalent to 180,000 cubic yards. The erroneous figure of 18,000 cubic yards was evidently converted directly and is given as 14,000 cubic meters in the text, whereas the figures in the table add up to 136,000 cubic meters.

Since the foregoing figures show that 180,000 cubic yards of sediment would be disturbed by the burial of 42.5 miles of pipeline, it is not clear why figures given on table I.A.2-3 (p. 9) show a total requirement for 641 miles of pipeline offshore and a total of 367,500 cubic yards of material excavated during pipeline burial. The discussion of impacts in the text mentions only the burial of 42.5 miles of pipeline and excavation of 176,800 cubic yards of sediment (p. 816, par. 3), but makes no mention of the larger figures of 641 miles of pipeline and 367,500 cubic yards of sediment.

- [15] Page 718, last par., beginning line 10: It has also been shown that the visibility of a plume is not directly related to volume or density of suspended material. Rather, the high visibility is attributable to the very high reflectivity of the fine, platey-shaped particulates which remain suspended.
- [16] Page 930, last par.: "(1 gauss = 105 gammas)" should read "(1 gauss = 100,000 gammas)."
- [17] Page 1248: The issue of Federal jurisdiction over pipelines is still very clouded. We are somewhat confused as to what criteria are presently used and feel that the discussion of BLM and GS roles may not be entirely accurate. Is the Chevron pipeline in the Santa Clara Unit considered a gathering pipeline?
- [18] Page 1259, Magnetic Surveying: First sentence should be changed to "The inclination of the earth's magnetic field...the direction of the earth's field: Some rocks exhibit permanent or remnant magnetization independent of the earth's present field."
- [19] Page 1307, line 2; p. 1308, lines 4 and 7; p. 1315, lines 4, 6, and 7; p. 1321, line 6; p. 1333, lines 10 and 11: "Reserves" should be replaced by "resources."
- [20] Page 1319, line 5: "2.3" should be "23".
- [21] Page 1329, first full par.: The statement that "cultural resource surveys are required prior to drilling" is not true under present procedures. The USGS/BLM MOU of March 17, 1978, established each agency's responsibility for protection of cultural resources on the OCS. Cultural resource surveys are to be required prior to drilling only after notification to the lessee by the Supervisor, based on documentation provided by BLM or other knowledgeable sources identifying the possible existence of cultural resources.
- [22] Page 1380, sec. 2a, line 4: Measured reserves should be about 31 billion barrels, not 37 billion barrels.
- [23] Stipulation no. 2: In the last line of the introduction to this stipulation, SR 109-144 should be changed to SR 109-114.
- [24] Stipulation no. 5: This stipulation was reviewed and discussed at length at a March 30 meeting (pursuant to Secretarial Order 2974) in Washington. A number of problems with the stipulation were raised, and POCs suggested that the Sale 42 biological resource stipulation be substituted as a replacement. Although the suggested action was not taken, some modifications were made without further discussion among the bureaus.

We believe the stipulation, in its present form, is cumbersome and confusing. Part (A) states that areas of special biological interest contain "biological communities or species of such extraordinary or unusual value (even though unquantifiable) such that no threat of damage, injury, or other harm to the community or species would be acceptable." Five types of areas are then cited as examples. Some of these areas seem to contradict the definition of a biologically significant area. For example, an area of abundant numbers of species would not normally be considered to be of such extraordinary value that no threat of damage would be acceptable.

The stipulation also designates areas identified within fishery management plans by the Pacific Fishery Management as areas of special biological interest. This alters the standard Departmental procedures, which rely heavily on the S.O. 2974 process for identifying such areas. Parties outside the Department and the Federal OCS regulatory framework are (and should be) consulted. However, such organizations should not have the authority for making a final determination on the applicability of lease stipulations.

In part (b), the Supervisor is authorized to make a determination regarding the existence of areas of special significance. However, the Supervisor is apparently bound (although the stipulation is not clear) by the criteria set forth in part (a). Some (but not all) of the part (a) criteria are repeated in part (b), adding to the confusion. We do not favor lease stipulation provisions which establish guidelines or provide instructions for the Supervisor. The manner in which the Supervisor fulfills his responsibilities should be established through OCS lease management procedures, not lease stipulations.

Part (b) also includes contradictory language on when the biological surveys would be performed. The lessee is required "immediately upon receipt of such notice to comply with requirements which instruct him to conduct a site survey prior to any drilling activity or the construction or placement of any structure." Is the lessee required to conduct the survey immediately or prior to drilling or developmental activity? To eliminate the confusion, the word "immediately" should be deleted.

We recommend that this stipulation be replaced with a biological stipulation similar to those which have been used in the Cook Inlet and Atlantic sales.

Stipulation nos. 6 and 7: These stipulations were not discussed at the S.O. 2974 meetings for this sale. We recommend the addition of the words "and environmentally preferable" following the word "feasible" in the last sentence of the first paragraph of Stipulation no. 6.

Stipulation no. 8: Several sentences regarding formation water were added to the stipulations without further consulting USGS. The language would require that any produced formation water be analyzed and toxicity tests performed. Literally interpreted, this would mean that formation water generated during exploratory drilling would have to be tested. We do not believe that this is the intent of the stipulation.

Regarding the basis for the decision on the disposal of formation water, the Supervisor would have to consider other factors beside the type and volume of formation water. These would include water depth, currents, and other oceanographic parameters.

The stipulation requires reinjection if "there is any question regarding the effect of the formation water upon local marine life." This language could cause problems for the Supervisor. Even if the consensus viewpoint is that discharge will have no significant impact, there is always likely to be some question as to the actual effects.

In lieu of the present four sentences related to formation water, we recommend the following language: "Based upon the composition of produced waters and the site-specific environmental conditions, the Supervisor may require reinjection or other special discharge techniques."

- [25] Appendix F: How will the results of this appendix be utilized? We believe the proximity analysis, as done, is very misleading and, in some cases, totally inaccurate.

To illustrate, 15 blocks have an environmental component rating of 10 (extreme impact), and 40 other blocks have one or more environmental component ratings of 9 (high impact). Yet, only 13 blocks have an average anticipated impact in the moderate range. The mean impact value is 2.4 (low).

The reason for such distorted conclusions is clear. Wherever there is no impact from an environmental component, a zero is entered. Yet, the average is obtained by dividing by 10 (10 components). In reality, however, the zero usually indicates that there is not only no impact, but that the component is not relevant. For example, beginning with Tract TCB-167 (p. F-31) the nearest distance from shore given is 26.5 miles, and in none of these is there a refuge or wildlife management area. Since the aesthetic and refuge components do not apply, they should not be considered in deriving the impact averages.

Consider Tract TCB-211 (p. F-35) as an example. An impact rating of zero is shown for aesthetics, recreation, and refuges. Using the existing method, dividing 29 by 10, the average impact value is 2.9. By not using these three components and dividing 29 by 7, a more realistic impact value of 4.1 is obtained.

A meaningful comparison cannot be made between tracts unless only relevant components are considered. The impacts of developing Tract TCB-211 are clearly greater than in developing Tract SBC-092 (p. F-22). Yet, both show the same average impact value of 2.9. When relevant factors are considered, Tract TCB-211 stands out with a value of 4.1. In the same way, at least 12 tracts cross the line from low (<4) to moderate (>4) average impact when this approach is used.

The purpose of this exercise is not to arbitrarily increase the apparent impact of the lease sale. In our judgment, the present system artificially minimizes the impacts and, therefore, distorts the real picture. We feel strongly that the entire proximity analysis should be corrected accordingly or be left out of the EIS. Since it can be a useful chart, we would prefer the former.

[26] Visual no. 9: Proposed lease areas are shown in the explanation but not on the map.

Visual no. 10: Color is missing from seafloor areas corresponding roughly to basement outcrops shown on visual no. 9. Faults shown on visual no. 10 do not agree with those shown on visual no. 9.

J. R. Bainley

Deputy Director

cc:

Env. Sec., Cons. Div., MS 630

Sec. Surname

Sec. Rdg. File (2)

AS/EM (2)

Dir., PEP (Advance)

Advance, Dir. BLM

Gen. Files, MS114, Reston

Dir. Chron.

RB

EGS:LBONHAM:mlc 11/3/78

Responses To:

USGS Comments

- [1] Correction has been made for clarification.
- [2] Correction has been made.
- [3] The text has been updated.
- [4] Corrections have been made.
- [5] This section has been updated.
- [6] The sentence has been rewritten as suggested.
- [7] This section has been updated.
- [8] API, Volume 29, May 1975.
- [9] Same as [8] above.
- [10-12] Corrections made.
- [13] The suggestion has been incorporated.
- [14] ES has been changed to reflect comments: Section III.A.2; and Section III.C.1.a.ii, Transportation Phase.
- [15] Comment noted.
- [16] Correction made.
- [17] Comment noted. A common carrier line is not a gathering line.
- [18-23] Corrections made.
- [24] All stipulations were agreed to in the July 24, 1978 Washington level S.O. 2974 meeting attended by USGS, BLM, FWS, NPS and DOI.
- [25] This analysis is only addressing the placement of permanent structures or pipelines. It does not consider oil spills or other possible environmental impacts. The method of averaging suggested by USGS could be used but would not be meaningful over the full range of impacts if only those impacts are counted that are greater than zero.

[26]

An errata sheet has been added to the visuals pointing out errors and corrections.



United States Department of the Interior

BUREAU OF MINES
2401 E STREET, NW.
WASHINGTON, D.C. 20241

November 7, 1978

Memorandum

To: Director, Bureau of Land Management

Through: Assistant Secretary--Energy and Minerals

[Signature] NOV 13 1978

From: Director, Bureau of Mines

Subject: Draft environmental statement, Bureau of Land Management,
proposed 1979 Outer Continental Shelf oil and gas lease
sale No. 48, offshore southern California

Although the statement does not discuss possible nonfuel mineral resources in the OCS area, we agree with the conclusion of the impacts section that offshore oil production would have only a small temporary impact on any potential ocean mining in the area.

[Signature: Roy L. Markel]
Director

Response To:

U.S. Department of the Interior, Bureau of Mines

No response required.

DEPARTMENT OF CONSERVATION

DIVISION OF MINES AND GEOLOGY

DIVISION HEADQUARTERS

1416 NINTH STREET, ROOM 1341

SACRAMENTO, CA 95814

(Phone 916-445-1825)



October 18, 1978

Mr. William E. Grant
Manager, Pacific OCS Office
Bureau of Land Management
300 N. Los Angeles St., Rm. 7127
Los Angeles, California 90012

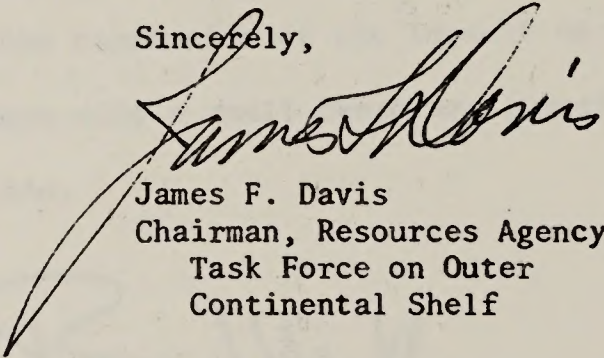
Subject: Review of DES on OCS Lease Sale No. 48
by the Resources Agency Task Force on OCS

Dear Mr. Grant:

Attached is a copy of the comments prepared by various departments in the Resources Agency. This was also presented to the California Coastal Commission on October 16, 1978 as part of their review of OCS lease sale No. 48.

We would appreciate your consideration and response to these comments for inclusion in the final environmental statement.

Sincerely,


James F. Davis
Chairman, Resources Agency
Task Force on Outer
Continental Shelf

cc: Priscilla C. Grew
Frank Goodson

Memorandum

To Mr. William E. Grant
Manager, Pacific OCS Office
Bureau of Land Management
300 N. Los Angeles Street, Rm. 7127
Los Angeles, CA 90012

Date : October 1, 1978

File No.:

Subject: Comments on the "Draft
Environmental Statement
Proposed OCS Lease Sale
48"

From *William B. Clark*
Office of the Secretary

The Resources Agency Task Force on OCS,
James F. Davis, Coordinator

The various departments in the Resources Agency have presented their concerns which are included in this presentation.

I. Summary. A summary of general findings and recommendations in the review of the Environmental Statement (ES) are presented in the following:

A. Air Resources Board

- [1] 1. Emissions from lease sale oil production are shown only for the most probable production and not the worst case. Emissions for the worst case (includes maximum oil and gas production and processing and maximum number of tankers and barges loading oil simultaneously) should be included in the ES.
- [2] 2. The ES did not describe the mitigation effects of best air control technology (BACT) and tradeoff requirement of new source review (NSR) if EPA and the State of California have jurisdiction over emissions in the area. The ES should describe what BACT is expected to mean in terms of required pollution control equipment and procedures and possible tradeoff candidates.
- [3] 3. The modeling used to estimate air quality impacts was incomplete for proper assessment of the model's performance. Additional testing is needed to provide accurate data on air quality effects.

B. State Lands Commission

- [4] 1. The ES virtually dismisses a discussion of the impact of the Lease Sale on possible marine sanctuaries which may be designated in and around the Lease Sale area in the future because, to date, none have been designated.

Although no marine sanctuaries have thus far been designated in Southern California, the several nomination documents prepared by local government contain a wealth of information documenting the importance of the marine and shoreline resources of these areas, and suggesting management techniques for protecting them

in light of the proposed Lease Sale. The importance of utilizing that information and the concerns which led to the nominations should be stressed in the ES and used to the maximum rather than minimized.

- [5] 2. Although an extensive discussion of the potential impacts of oil spills on coastal resources is presented in the ES, it treats the mitigations and resulting socio-economic costs of such spills rather lightly because of the computed low probability that a major spill will reach the shoreline.

Southern California's beaches are among the most popular and heavily used by local residents and visitors from throughout the world. Tourism is California's third largest industry and much of it is coastal related. A heavy oil spill reaching the shoreline could substantially diminish the usability of sandy beaches for many years, thus causing substantial social and economic disruptions in coastal communities. Many of the beach areas are publicly owned and managed. The public has invested very substantial sums of money to acquire, improve and maintain these coastal park and beach areas.

In the case of San Diego's beaches, sea currents will bring oil spills from leases proposed off of San Diego and the Tanner-Cortez Bank directly to its beaches.

- [6] 3. The ES alludes to onshore facilities but fails to analyze them. Oil development will require production and processing facilities somewhere, and the ES should recognize or analyze any of these options.

C. State Water Resources Control Board

- [7] 1. The ES shows a high probability of a 1000-barrel spill reaching several of the Channel Islands and a higher probability that the spill could reach the State's three-mile limit, which forms the boundary of the Areas of Special Biological Significance (ASBS) in several cases. Also, drilling muds and formation waters could have adverse impacts if they are discharged near an ASBS (within 1000 meters).

The State Water Resources Control Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan) requires that wastes be discharged a sufficient distance from ASBS to assure maintenance of existing water quality. Because the Ocean Plan has been approved by the Environmental Protection Agency, the proposed lease sale must comply with these federal water quality standards by providing a means to preclude discharges to ASBS.

The final ES should recommend specific mitigation measures to protect the ASBS. Such measures could include additional spill containment equipment on drilling ships and platforms, a

prohibition on discharge of drilling muds near ASBS, and a prohibition on discharge of formation water or alternative methods of disposal such as reinjection or diffusers. As an alternative, Special Stipulations Nos. 5 and 7 could apply to the ASBS. Specifically, Stipulation No. 5 could be revised to not only include "areas of special biological interest" in a leased tract, but also special areas, e.g., an ASBS, near them. Stipulation No. 7 could include tracts bordering an ASBS, in particular, those tracts bordering Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara Islands.

- [8] 2. Due to the unreliability of spill containment equipment in rough weather, the final ES should recommend specific alternatives to protect the ASBS. While the final ES for Lease Sale #35 considered a three-mile buffer beyond State waters to protect the ASBS, this DES discusses only a 3/4-mile buffer to prevent drainage from State lands and to protect marine bird and mammal rookeries. The final ES should evaluate a three-mile buffer in one of two forms:
- (1) delete portions of tracts within three miles of State waters, or
 - (2) prohibit activities in ocean waters within the buffer zone, but allow the tracts to be leased and exploited by slant drilling.
- [9] 3. The ES states that no drilling mud containing toxic substances may be discharged into ocean waters. However, the ES does not clearly identify under what conditions potentially toxic material such as chromium lignosulfonate and barite could be discharged.
- [10] 4. The oil is described as being the most toxic within the first two to three days, yet the trajectory study presents the 60-day results as the worst case. The ES should explain why 60 days were considered as the "worst case" time interval.

D. Division of Mines and Geology

- [11] 1. The criteria in the ES used to classify active faults, that is, faults with movement occurring only during the past 200 years, appears not to be sufficiently conservative when compared with criteria used in onshore facilities such as structures for human occupancy (fault movement within 11,000 years) and the LNG project (fault movement within at least 35,000 years).
- [12] 2. To provide consistency and proper conservatism it is recommended that active faults be defined as those having a movement within the past 11,000 years (Holocene time), and that all facilities be designed to accommodate the maximum credible earthquake occurring within Holocene time.

E. Solid Waste Management Board

- [13] 1. The ES does not address the question of solid waste disposal due

accidental spills. The Board recommends that assurances be provided on the availability of proper disposal sites for contingency situations.

- [14] 2. The contingency disposal facilities proposed must be included in the local county solid waste management plan and obtain a solid waste facility permit from the local solid waste enforcement agency, the State Department of Health, and obtain Waste Discharge Requirements from the Regional Water Quality Control Board.

F. Department of Fish and Game

- [15] 1. There was no discussion of the amounts of oil in the chronic discharges nor the possible effects of such discharges on the beneficial uses of the receiving waters.
- [16] 2. The ES indicates that spills from pipeline ruptures account for 61% of oil pollution in the Gulf of Mexico operations. We recommended that more detail be provided in the DEIS as to specific routings and that assurance be given that comprehensive assessments of pipeline routings will be required.
- [17] 3. We are concerned about the buffer zones around the Channel Islands where critical bird rookeries and pinniped haul out areas exist.
- [18] 4. Additional detail is needed concerning mitigation features so that the most effective oil spill clean-up and prevention technologies will be implemented, structures will not be located in historic commercial fishing areas, and that operations will be conducted in a manner that will not interfere with the normal biological activities of fish and wildlife, especially sea birds and marine mammals.

G. Department of Parks and Recreation

- [19] 1. State beaches and other public beaches could be impacted by oil spills.
- [20] 2. The mitigating controls should be adequate to prevent potential oil spills from state beaches?

II. Attached Memoranda. Detailed Resources Agency comments.

(Refer to following pages)

AIR RESOURCES BOARD

Introduction

The Federal government proposes a 1979 sale of oil and gas leases on the Outer Continental Shelf (OCS) of Southern California. The proposed lease sale includes 217 tracts with an area of about 1,141,818 acres. Areas included in the lease sale are the Santa Barbara Channel, Santa Rosa, Santa Barbara Island, Tanner-Cortes, San Pedro Bay, and Dana Point-San Diego.

The estimate of most probably undiscovered recoverable resources for the lease sale are 715 million barrels of oil and 860 billion cubic feet of natural gas. The most probably peak production rates are expected to occur in 1986, and are estimated to be 219,700 barrels per day of oil and 264,400,000 cubic feet per day of gas.

Oil will probably be transported from OCS tracts by a combination of pipelines and tankers, depending on the location and volumes of oil encountered. Gas will either be piped ashore to enter the gas utilities distribution network or will be consumed offshore to power production platform operations. Both of these options may be exercised simultaneously.

Estimated well drilling activities through 1990 include 86 exploratory wells, 71 delineation wells, 630 development wells, and 71 subsea completion wells.

A total of 641 miles of offshore pipeline is expected to be constructed. Although projections indicate no onshore pipeline is to be required, four new operation bases are expected to be built onshore, two for the Santa Barbara area and two for the Los Angeles-Long Beach Harbor area.

Other offshore equipment to be constructed or used due to the lease sale include about 15 platforms, up to seven supply and support boats, one 50,000 DWT tanker, four 10,000 bbl barges, two 150,000 bbl barges, three single buoy moors, (SBM's) and three offshore storage and treatment plants (one of 100,000 bbl, one of 6,000 bbl, and one of 16,000 bbl capacity).

General Comments

There are a number of minor errors in the presentation of existing air quality for the region. Some of these data should have been footnoted or deleted due to nonrepresentativeness or other problems encountered in the collection of data. A number of apparent errors or questionable figures also occur in the air quality impact section. In some cases, emission inventory figures appear incorrect, while in other cases project emissions are questionable or missing for some operational modes of oil production. In addition, the emissions from lease sale oil production are shown for only the most probably production case. Emissions for the worst case (high production) should also be included in the final Environmental Statement (ES).

The modeling approach used to estimate the air quality impact of inert pollutants appears to be basically reasonable and valid; however, for ozone only a single trajectory for each case was apparently modeled. Other parallel trajectories should also be modeled so that a proper assessment of the model's performance can be made.

The section on clean air standards should have more fully explained the issue of jurisdiction over the OCS, and the mitigation effects of best air control technology (BACT) and tradeoff requirements of new source review (NSR) which would be implemented if EPA and the State of California have jurisdiction over emissions in the area.

Specific Comments

- [21] 1. The H₂S air quality standard promulgated by the Santa Barbara County APCD is not an ambient standard as indicated on page 544. This standard is an emission standard which happens to be expressed as a concentration in ambient air.
- [22] 2. On page 545, the map of California air basins does not show the latest boundaries. The San Diego Air Basin now contains all of San Diego County.
- [23] 3. The California NO₂ standard, 0.25 ppm, is missing from Table II.H.1-1. In addition, the California 24-hour SO₂ standard was recently changed from 0.04 ppm (105 ug/m³) to 0.05 ppm (131 ug/m³), and this change should be reflected in the table.
- [24] 4. The draft indicates on page 548 that ambient air quality information is not available after 1975 in a reasonably complete form. However, 1976 data have been available for some time, and 1977 data are now also available.

Again on page 548, the draft indicates that TSP, lead, and sulfates are measured continuously. Generally, however, measurements of these pollutants occur over a 24-hour period once every six days.

- [25] 5. On page 550, Table II. H.1-2, ozone data for Riverside-Rubidoux appear to be combined for two monitoring methods. Since the sampling periods for these two methods overlapped, data from the method with more complete data (the colorimetric method) should have been used in the table.

In addition, ARB records indicate the number of days exceeding the Federal oxidant (ozone) standard for Santa Barbara-State Street in 1975 is 32, not 9 as found in the table.

Data for Costa Mesa in the table are probably not representative. 1975 data for this station do not include the month of August, which is generally considered to be the peak "oxidant season" month.

[26] 6. In Table II. H.1-3 on page 554, data for Costa Mesa and La Habra may not be representative as data for part of the year are missing. Figures for these two stations should be footnoted or eliminated from the table.

[27] 7. The title of Table II. H.1-4 on page 557 should indicate the table contains the number of days exceeding the State standard. The title in the draft mentions the Federal standard.

In addition, the number of days exceeding the State standard for Riverside-Magnolia is four, not zero as indicated in the table.

[28] 8. In Figure II. H.1-7 on page 558, the isopleths do not appear to be accurate. For instance, the isopleths indicate the average annual NO₂ concentration at Long Beach in 1975 is about 0.04 ppm, but the actual concentration is 0.062 ppm according to ARB records and page 557 of the draft.

[29] 9. On page 562, the title of Table II. H.1-5 erroneously indicates the table has 3-hour averages.

In addition, data for Los Alamitos are for only part of the year, and should be so noted.

[30] 10. The oxidant trend for Santa Barbara on page 567 may not be accurate, since 1966 and 1972 data are for only part of the year. This fact should be pointed out in the final ES.

[31] 11. Footnotes for Figure II. H.1-11 on page 568 are apparently missing.

In addition, Santa Barbara trends may not be accurate, since 1966 data are for only part of the year, and this fact should be noted in the final ES.

CO data for all stations operated by the Los Angeles County APCD (Lennox and Downtown Los Angeles in the figure on page 568) were biased high until early 1968, due to a water vapor interference problem. Since there is no accurate adjustment factor for the earlier data, the figure on page 568 probably should include only 1969 and later CO data from Lennox and Downtown Los Angeles.

[32] 12. Several minor discrepancies occur on page 569. The term "downward Los Angeles" probably should be "Downtown Los Angeles". The text does not discuss the NO₂ trends displayed in Figure II. H.1-12, and refers to this figure as the SO₂ trend figure. The text also discusses the particulate trends of Figure II. H.1-13, but this figure contains the SO₂ trends. The particulate trend figure is apparently missing.

[33] 13. Table III. D.1.a-1 on page 1021 summarizes emissions from Sale No. 48 sources, and compares these emissions to total South Coast Air Basin emission. However, it is not clear whether emissions are expressed as average hourly emissions or maximum hourly emissions. The final ES should clarify this point.

In addition, the ARB staff has estimated the maximum hourly SO₂ emissions from Sale No. 48 offshore platforms and SBM's for the 100% tankering

scenario should be about 11 Kg/hr rather than 64 Kg/hr found in the draft.

Hydrocarbon emissions are generally expressed as total hydrocarbons in the draft, but in the table on page 1021 are expressed as NMHC (non-methane hydrocarbons). This latter term should be defined in the text, and figures for the sources in the table should be checked to assure that they indeed refer to NMHC rather than total hydrocarbons.

The draft on page 1022 indicates the decrease in NO_x and SO_x emissions in the table on page 1021 for the 100% tankering scenario is due to the elimination of gas processing activity, as the gas recovered from the oil would be reinjected into the oil field. However, compressors used for gas reinjection take a significant amount of power, and emissions from these compressors apparently are neglected in the emission calculations.

The emission inventory for the South Coast Air Basin on page 1021 should be documented. Documentation should include the year and source of the inventory, along with information on whether the inventory represents average or peak emissions. The ARB emission inventory for the South Coast Air Basin indicates average CO emissions are 7570 tons per day (287,000 kg/hr) rather than 119,384 kg/hr found on page 1021.

- [34] 14. The air quality impact section considers only the most probably case of oil production and processing. This section should have considered the worst case emissions. This case would not only include a maximum recoverable resources scenario for oil production, but would include offshore gas production and processing and the maximum number of tankers and barges loading oil simultaneously.
- [35] 15. The air quality impact section does not consider tanker and tug transit emissions. NO_x and SO_x emissions from such activities could be significant, and should be included in the final FS.
- [36] 16. The air quality impact section is not clear in indicating whether offshore gas processing is included in the emission summaries. Offshore gas processing can result in significant SO_2 emissions if sour gas is incinerated rather than passed through a sulfur recovery unit.
- [37] 17. On page 1032, figures in Table III. D.1-c-2, containing estimated emission for an LNG terminal, do not appear to be accurate.

For example, estimated NO_x emissions calculated by ARB staff in the final Environmental Impact Report for the Point Conception LNG terminal were 4 lbs/hr and 25 lbs/hr for the trim heater and peaking vaporizers respectively. The corresponding figures from page 1032 are 60 lbs/hr and 100 lbs/hr., also respectively.

Since unodorized LNG will be used in heaters and peaking vaporizers, there will be no SO_2 emissions from these sources, yet the table lists emissions of 2 lbs/hr and 4 lbs/hr for these sources.

In addition, the largest source of peak emissions for the entire LNG project, the LNG tankers, are totally ignored in the table. These tankers, using 0.25% sulfur fuel oil, could emit as much as 182 lbs/hr SO_2 and 228 lbs/hr NO_x .

- [38] 18. In the section describing emissions from other major proposed projects on page 1031 to 1034, the emission from the Elk Hills project were for the Port Hueneme pipeline alternative. This alternative now appears highly unlikely, and the present Elk Hills proposal calls for a pipeline to Rialto connecting with the SOHIO pipeline. This latter proposal should be the basis for the emissions calculations in the final ES.

In addition, a substantial increase in lightering operations is expected to take place by 1986 off the coast of California, yet emissions from this activity are not discussed in this section.

- [39] 19. On page 1038, the Federal 8-hour standard for CO is listed as 10 ppm. This is incorrect, as the concentration should be 9 ppm.
- [40] 20. The modeling approach used in the air quality impact section appears to be a reasonable and valid approach for the inert pollutants. For the REM 2 modeling, however, the relatively low errors summarized in Table III. D.3.9-2 on page 1070 could be misleading. These errors or uncertainties are valid only for the trajectories selected for a specific day, location, and start and end time. They do not reflect the accuracy which the model can predict the temporal and spatial pollutant concentrations for other trajectories for different locations and starting time.

Trajectory models, such as REM 2, are sensitive to those grids having high emission fluxes of reactive hydrocarbons and NO_x which the trajectories pass over. There were limited data to reconstruct the trajectories used in the model, resulting in a significant degree of uncertainty over which grids the trajectories actually passed over.

Several additional parallel trajectories should be constructed to assess the model's prediction with measured data, so a proper interpretation of the model's performance can be made. The use of several parallel trajectories will also allow the evaluation of expected ranges of pollutant concentrations which may occur, knowing the uncertainties in the model's input data.

It is strongly recommended that these additional runs of the REM 2 model be made, to provide the decision makers with the kind of data needed to reach accurate conclusions on the air quality effects of the proposed lease sale.

- [41] 21. In Chapter VIII, alternatives to the Proposed Action, several tables summarize the estimated emission reductions from deleting certain areas from the proposed lease sale. These tables could be improved if the reductions are compared to the emissions attributed to the entire lease sale.
- [42] 22. Under the section on mitigating measures (pages 1223-1261), the issue of applicability of the Clean Air Act to OCS lease sale developments should have been thoroughly discussed, including the positions of EPA and the State of California. The draft ES should have also described the effect the Clean Air Act would have on the project, specifically, the effect of the State and Federal versions of new source review (NSR) pm emissions. NSR could require the use of best available control technology

(BACT) on all emission related equipment, and may additionally require emission tradeoffs with other sources. The final ES should describe what BACT is expected to mean in terms of required pollution control equipment and procedures, and possible tradeoff candidates if tradeoffs will be required.

[43] DEPARTMENT OF PARKS AND RECREATION

The Department of Parks and Recreation has reviewed the Draft Environmental Statement for BLM's proposed lease of tracts off the Southern California Coast.

The project, if implemented, could pose dangers of oil spills. These spills could adversely impact State beaches and other public beaches.

The project should include controls and techniques to eliminate these spills.

[44] STATE SOLID WASTE MANAGEMENT BOARD

We have reviewed the subject draft EIR and do not believe that it adequately addresses the important question of solid waste disposal stemming from accidental spills.

We note on page 1135 of the report, that should a large spill occur, "additional disposal methods become necessary, such as landspreading and burial, which cause additional impacts." We believe that the oil companies should be required to assure that proper disposal sites are available for contingency situations.

The contingency disposal facilities proposed must be included in the local county solid waste management plan, obtain a solid waste facility permit from the local solid waste enforcement agency and the State Department of Health, and obtain Waste Discharge Requirements from the Regional Water Quality Control Board. In this way state and local agencies can assure that additional adverse environmental impacts do not occur.

If you have any questions regarding this memo or the Board's jurisdiction in this area, please contact Mr. John Boss of my staff at (916) 322-8747.

DIVISION OF OIL AND GAS

- [45] Page 593. The paragraph explaining the four types of exploratory drilling rigs is somewhat misleading as to the depths in which they operate. A jack-up rig can be designed to operate in water much shallower than 300 feet so the only depth limitation should be a maximum of 500 feet. Semisubmersibles and drillships are limited by anchoring lines so the only depth limitation should be a maximum of 2000 feet. The dynamically positioned drillship is limited only by riser design and exploratory drilling operations have been carried out in much deeper water where a riser pipe has not been used.

- [46] Page 628. In line six, the term reservoir is used to refer to mud tanks. This term should not be used in this sense as it normally refers to the strata in the earth that contains oil and gas. The term system or mud system would be more appropriate.
- [47] Page 629. Lines 9 and 10 state the well depth and hole size is dependent on the casing program. This is not true. The well depth is dependent on the location of the known or suspected oil- and gas-bearing strata and the rig location. The casing program is designed to accommodate this depth and the hole size is dependent on the casing size.
- [48] Page 631. The same comment as on page 629 applies to lines 1 and 2. Drilling mud volumes are dependent on the hole depth which controls the casing program.
- Lines 3, 4, and 5. Table III. A-8 refers to exploratory wells only. It does not mention development wells.
- Lines 35 and 36. The maximum ratio of formation water to oil extracted of 3 to 1 is a water cut of 75 percent. Currently two California offshore fields are operating at cuts of 85 percent and 88 percent (1976 data), ratio of about 8 to 1. With oilfield economics being what they are today it may be too conservative to use the 3 to 1 ratio.
- [49] Page 631. Lines 37 and 38. Again, with today's economic climate, this rule of thumb is too conservative.
- [50] Page 641. Line 14, (3 feet) should be (5 feet).
- Line 15, 2.7 to 61m should be 3.7 to 61m.
- [51] Page 768. Lines 44 to 46. More than 500 wells in Wilmington field are known to have been sheared off by subsurface movement. There has been no reported oil spillage due to this type of event. Pipeline rupture is a more likely cause of spillage due to fault movement.
- [52] Page 770. Lines 26 and 27. The sentence beginning "The epicenters..." is incomplete and meaningless.
- [53] Page 1225. Line 10. "Well-hole walls" is not a correct term. The entire annulus must be sealed.
- Line 31 "...the Department's..." is not clear. Which Department needs to be more clearly defined?
- [54] Page 1235. Paragraph 5.c, line 6. The term "the passage of any petroleum" probably should be "the spillage of any petroleum".

STATE WATER RESOURCES CONTROL BOARD

Introduction:

We have coordinated the review of the subject environmental document with the California Regional Water Quality Control Boards for the Central Coast, Los Angeles, Santa Ana, and San Diego Regions.

Recommendation:

The final environmental impact statement should address the following comments.

General Comments:

- [55] 1. Section III.A.1.a., page 629, indicates that no drilling mud containing toxic substances may be discharged into ocean waters. However, in Section III.C.1.b., pages 824-825, the DES discusses a disagreement that exists regarding the toxicity of chromium lignosulfonate and barite. Without reading the latter section, the reader is led to believe that possibly toxic materials, such as chromium lignosulfonate and barite, would not be discharged. Section III.A.1.a. should clarify under what conditions these potentially toxic materials could be discharged in compliance with OCS Order No. 7.
- [56] 2. The final ES should discuss how the probability values computed in the trajectory studies will be used in decision making. This information would allow the reader to better understand the purpose of these studies.
- [57] 3. Tables III.A.4.b.iv-1 through III.A.4.b.iv-4 present the 60-day results of the trajectory study as the worst case, while the text on page 1277 indicates that the oil is most toxic within the first two to three days. The final ES should discuss the factors considered and the reasons for selecting 60 days as the "worst case" time interval.
- [58] 4. Table III.C.1.1-1 shows a high probability of a 1000-barrel spill reaching several of the Channel Islands. A higher probability that the spill could reach the State's three-mile limit, which is the boundary of the Areas of Special Biological Significance (ASBS) in several cases, would be expected. Moreover, page 941 of the DES states that "high probabilities of spills hitting the islands...virtually assures that there will be some injuries...to these sensitive communities [the Channel Islands ASBS]." Similarly, the DES recognizes that drilling muds and formation waters could have adverse impacts if they are discharged near an ASBS (within 1000 meter

While the DES recognizes these impacts, it does not indicate clearly the significance of an ASBS and the relationship of the lease sale to federal water quality standards. The State Water Resources Control Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan) requires that wastes be discharged a sufficient distance from ASBS to assure maintenance of existing water quality. Because the Ocean Plan has been approved by the Environmental Protection Agency, the proposed lease sale must comply with these federal water quality standards by providing a means to preclude discharges to ASBS.

To mitigate this potential for significant impacts and to comply with water quality standards, the final ES should recommend specific mitigation measures to protect the ASBS. Such measures could include additional spill containment equipment on drilling ships and platforms, a prohibition on discharge of drilling muds near ASBS, and a prohibition on discharge of formation water or alternative methods of disposal such as reinjection or diffusers. As an alternative, Special Stipulations Nos. 5 and 7 could apply to the ASBS. Specifically, Stipulation No. 5 could be revised to not only include "areas of special biological interest" in a leased tract, but also special areas, e.g., an ASBS, near them. Stipulation No. 7 could include tracts bordering an ASBS, in particular, those tracts bordering Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara Islands.

- [59] 5. Additional alternatives should be evaluated where the recommended mitigation measures are not adequate to avoid potential adverse impacts. It is believed that due to the unreliability of spill containment equipment in rough weather, the final ES should recommend specific alternatives to protect the ASBS. While the final ES for Lease Sale #35 considered a three-mile buffer beyond State waters to protect the ASBS, this DES discusses only a 3/4-mile buffer to prevent drainage from State lands and to protect marine bird and mammal rookeries. The final ES should evaluate a three-mile buffer in one of two forms:

(1) delete portions of tracts within three miles of State waters, or

(2) prohibit activities in ocean waters within the buffer zone, but allow the tracts to be leased and exploited by slant drilling.

Specific Comments:

- [60] 1. The DES should distinguish between the term "Area of Special Biological Significance" as used by the State Water Resources Control Board and by the BLM. For example, on page 880, Table III.C.1.d-5 identifies areas that are significant to marine mammals and birds, but these areas are not ASBS designated by the SWRCB.
- [61] 2. Page 19: The listed Areas of Special Biological Significance (ASBS) are incorrect or misleading. Specifically, Newport Bay and the entire San Diego-La Jolla coastal region are not ASBS, while other ASBS are omitted. The list should be revised as follows: "Areas of Specific Biological Significance" include San Miguel, Santa Rosa, and Santa Cruz Islands, San Nicolas Island and Begg Rock, Santa Barbara Island and Anacapa Island, San Clemente Island, the nearshore area from Mugu Lagoon to Latigo Point, portions of Santa Catalina Island, San Diego-La Jolla Ecological Reserve, Heisler Park Ecological Reserve, San Diego Marine Life Refuge, Newport Beach Marine Life Refuge, and Irvine Coast Marine Life Refuge.
- [62] 3. Page 708: ASBS occur in Shoreline Segments 21, 22, and 24. These ASBS are the San Diego-La Jolla Ecological Reserve, and the San Diego, Irvine Coast, and Newport Beach Marine Life Refuges, respectively. These ASBS should be noted in the respective listings of "Significant categories of impact" on pages 744, 745, and 746.
- [63] 4. Page 939, Section III.C.1.j.: This paragraph is misleading regarding the ASBS. Because some of the offshore islands are grouped into ASBS, there are only fourteen ASBS in the Lease Sale #48 area. The paragraph indicates there are fourteen ASBS between Point Reyes and Punta Eugenia. In addition to the fourteen ASBS in southern California, there are twelve ASBS between Point Conception and Point Reyes National Seashore.
- [64] 5. Page 1325, Section VIII.A.6.b.ii.: The boundary of the Santa Barbara Island ASBS is one nautical mile or the 300-foot isobath, whichever is the greatest distance from shore. The boundary would not extend to the three-mile limit.

If you have any questions on these comments, please contact David Deckman at the above number.

PAGE

- [65] 59 Reference is made to Visual No. 10 regarding locations of faults; correctly, reference should be made to Visual No. 9, Geologic Hazards and Marine Sediments.
- [66] 61 "Major areas of mass-movement, or the potential for mass-movement has been identified on ..." (12 tracts). Is the inference correct that, no potential for mass-movement is recognized on the balance of the 217 proposed sale tracts?
- [67] 61 "The largest tsunami ever reported in California followed the 1812 earthquake. Wave run-up may have reached 15 m (49feet) above sea level just west of Santa Barbara." No reference or documentation is presented to substantiate this occurrence.
- [68] 768-
775 section 111 B-1, Geologic Hazards and Seismic Condition. The Statement contains no bibliography of the references cited in this section.
- [69] 769 "As only one destructive tsunami has occurred within the Southern California area (Gaviota, 1812), the potential impact to offshore oil and gas operations which may be attributed to tsunamis is negligible [sic]." The nature or magnitudes of destruction are not explained and the relationship to offshore operations is obscure. Tsunamis generated from distant sources (Andean Trench, Aleutian Trench, etc.) have historic occurrences along the California coast and the potential impact of distant generated tsunamis should be assessed.
- [70] 770 "The maximum credible earthquake predicted for the area is one of Richter magnitude 6 with a recurrence interval of approximately 20 years. See Figure III.B.1- and 2." (Santa Barbara Channel area). Figure III, n.1 and 2. indicates the approximate recurrence interval of a magnitude 6 earthquake is 100 years. It is also apparent that the instrumental record is inadequate to specify the expected ground motions or where such events might occur.
- Final Environmental Statement 76-13, Oil and Gas Development in the Santa Barbara Channel, pp-II, 125-126 discusses the rationale for suggesting a magnitude 7.5 event and concludes "It is therefore likely that the stress necessary for the generation of a magnitude 7.5 earthquake is attainable in the Channel region."
- [71] 773 "In the San Pedro shelf area, active faults seem to be the principal geologic hazard. Probably the most important is the offshore extension of the Palos Verdes fault, which is more than 40 miles long and locally offsets the seafloor. Earthquake epicenters along its trace verify its continuing activity. Many other faults that extend upward to the seafloor must be considered environmentally hazardous, as they cut beds of Holocene age." Since proposed sale tracts are located in proximity to these features it would be appropriate to provide more specific information or reference available data sources which provide the basis for these determinations.

- [72] 773 "Only a few locally generated tsunamis have been recorded along the coast between Point Mugu and the Mexican border and none of them caused major damage; one was noted in 1879 at Santa Monica, and two others were reported in 1925 (uncertain) and 1933 at Long Beach. The 1933 seismic seawave resulted from the March 10, 1933 Long Beach earthquake." No reference documentation is provided to substantiate these determinations. There appears to be conclusive evidence that no tsunami occurred as a result of the 1933 Long Beach earthquake (Emery, K.O., 1960. The Sea off Southern California, p. 124: Neuman, Frank, 1935, United States Earthquakes 1933, U.S. Dept. of Commerce, p. 28).
- [73] The criteria in the ES used to classify active faults, that is, faults with movement occurring only during the past 200 years, appears not to be sufficiently conservative when compared with criteria used in onshore facilities such as structures for human occupancy (fault movement within 11,000 years) and the LNG project (fault movement within at least 35,000 years).
- [74] To provide consistency and proper conservatism it is recommended that active faults be defined as those having a movement within the past 11,000 years (Holocene time), and that all facilities be designed to accomodate the maximum credible earthquake occurring within Holocene time.

DEPARTMENT OF FISH AND GAME

These comments are being submitted for purposes of discussion for the October 5, 1978 meeting of the OCS Task Force concerning Lease Sale No. 48. Based upon our initial cursory review of the DEIS, we note the following:

- [75] A. There is discussion of chronic discharges containing oily substances from platforms, but there appears to be no discussion of the amounts of oil in the discharges nor the possible effects of the discharges on the beneficial uses of the receiving waters.
- [76] B. The use of pipelines to transfer the oil from offshore to land sites is discussed in detail. The document also indicates that spills from pipeline ruptures account for 61% of oil pollution in the Gulf of Mexico operations. We may ask that more detail be provided in the DEIS as to specific routings and that assurance be given that comprehensive assessments of pipeline routings will be required.
- [77] C. We have not yet reviewed any discussion with respect to buffer zones around the Channel Islands where critical bird rookeries and pinned haul out areas exist.
- [78] D. We may provide detailed comments among others concerning mitigation features so that we will be assured that the most effective oil spill clean-up and prevention technologies will be implemented, structures will not be located in high fishery areas, and that operations will be conducted in a manner that will not interfere with the normal biological activities of fish and wildlife, especially sea birds and marine mammals.

STATE LANDS COMMISSION

[79] The EIS for OCS Sale #48 is a poor example of an impact analysis. Much of the document is description of the environment taken verbatim from OCS Sale #35; the remainder is a rather cursory analysis of the impacts associated with oil and gas development in the OCS. In view of the recent development in the OCS as a result of OCS #35, it would seem that the impact analysis could be far more specific and quantitative than that which was produced.

A. General Comments:

- [80] 1. The draft EIS alludes to onshore facilities but fails to analyze them. Oil development will require production and processing facilities somewhere. The draft EIS fails to recognize or analyze any of these options. This oversight should be rectified in the final.
- [81] 2. The text includes voluminous data on the physical, oceanographic, and environmental conditions along the coastline from Point Reyes to Scammons Lagoon; it is questionable to include the baseline data in those areas that are not directly impacted by the proposed OCS Lease Sale No. 48 in the Southern California Borderland.
- [82] 3. Much of the impact data in the Draft Environmental Statement is based on the production scenarios developed from the estimated most probable discovered recoverable resources. It appears that the emphasis is based on impacts from resource estimates that are hypothecated through analogous data in a general sense. It appears that the coastal impacts would be better served if more information on the location and physical characteristics of the resource were addressed in the text. The hypothecated production scenarios appear to be generalized and not adhered to from analogous data as the reservoir is depleted. These data are important in the oil spill risk analysis model predictions.

[83] 4. The visuals are not based on any fixed time frame and the technical data is entered without due concern for the impact on the overall impact on OCS exploration and development.

[84] 5. The DES presents extensive discussion of the potential impacts of oil spills on coastal resources. However, it treats the mitigations and resulting socio-economic costs of such spills rather lightly because of the computed low probability that a major spill will reach the shoreline. In addition, the DES virtually dismisses a discussion of the impact of the Lease Sale on possible marine sanctuaries which may be designated in and around the Lease Sale area in the future because, to date, none have been designated.

[85] Although no marine sanctuaries have thus far been designated in Southern California, the several nomination documents prepared by local government contain a wealth of information documenting the importance of the marine and shoreline resources of these areas, and suggesting management techniques for protecting them in light of the proposed Lease Sale. The importance of utilizing that information and the concerns which led to the nominations should be stressed in the EIS and used to the maximum rather than played down.

[86] Southern California's beaches are among the most popular and heavily used by local residents and visitors from throughout the world. Tourism is California's third largest industry and much of it is coastal related. A heavy oil spill reaching the shoreline could substantially diminish the usability of sandy beaches for many years, thus causing substantial social and economic disruptions in coastal communities. Many of the beach areas are publicly owned and managed. The public has invested very substantial sums of money to acquire, improve and maintain these coastal park and beach areas. Their protection is dear to all Californians.

[87] At least in the case of San Diego's beaches, sea currents within the Southern California bight will bring oil spills from leases proposed off of San Diego and the Tanner-Cortez Bank directly to its beaches.

B. Specific Comments:

Comments Lease Sale 48 DES Volume I

- [88] 1. P. 4 (Section I.A.2) para. 3 - The gas production rate data is not considered valid since constant producing G.O.R. is used throughout the projected producing life.
- [89] 2. P. 4 (Section I. A.2) para. 4 - It would be helpful to know what percentage of Santa Barbara Channel oil is projected to be shipped by pipeline versus tanker shipped.
- [90] 3. P. 5 (Section I.A.2) para. 6 - The total producing period is stated as a 40-year spread, with 25 years assumed as the productive life of the fields. This presumes staggered development over the several areas over a 15-year period, yet Table I.A.2-1 shows all development wells drilled within 8 years of initial production.
- [91] 4. P. 6 (Table I.A.2-1) - The annual oil production rate through the year 2000 may be projected to decline at 7% per year. Utilizing the 40-year producing period and the 7% annual decline, the projected recoverable reserves for the period 2000-2021 is 136 million barrels, which makes the total oil production for the 40-year producing period 802 million barrels. This makes the total oil production from this table 12% higher than the estimated most probable recoverable figure on Page 1. Since constant G.O.R. data is used, it is presumed that the gas production is commensurately high.
- [92] 5. P. 51 (Section I.E.11) - The data on Proposed onshore and offshore LNG sites should be made as current as possible. The State Lands Commission staff has repeatedly expressed concern over the location of the site and the effect that the facility could have on offshore oil and gas development.
- [93] 6. P. 60 (Figure II.A.2-1) - The stippled, hachured, and blank areas should be identified.
- [94] 7. P. 61 (Section II.A.3) para. 1 - The statement relating petroleum occurrence to age-dated reservoir rocks should be changed to "Petroleum production is concentrated in young reservoirs....". It should also be noted that this distribution is unique to developed California basins.

- [95] 8. P. 61-62 (Section II.A.3 and Tables II.A.3-1, II.A.3-2, II.A.3-3). The discussion of the tables on Page 61 should be rewritten.
- [96] Table II.3-1 is not an estimate of recoverable petroleum for the central California OCS area; it is an estimate of petroleum resource potential for two of the six basins identified in the offshore central and northern California areas.
- [97] Table II.3-2 is not an estimate of petroleum production for the Santa Barbara Channel OCS area; it is a stratigraphic distribution of cumulative production to January 1, 1975, for the entire Ventura Basin. The production figures assignable to "late Miocene" in this table should be changed to "late Miocene or younger".
- [98] The relationship between the three tables is not clear. Each table represents a statistical summary of some set of data for an area, however, these tables do not collectively represent comparable resource estimates for each geographic area as inferred in the text.
- [99] Tables II.A.3-1 and II.A.3-3 could not be located in the referenced document; Geological Survey Circular 730, "Geologic Appraisal of the Petroleum Potential of Offshore Southern California - The Borderland Compared to Onshore Coastal Basins".
- [100] 9. P. 526 (Section II.G.2.d.ii) para. 6 - The statement, "During 1976, restrictions continued on the search for new reserves and the further development of proved fields within State tidelands." should be clarified. There is no active leasing on State tidelands. Development of reserves on leased lands is continuing by drilling from onshore, platform, and manmade island locations. Drilling from floating vessels could occur when safety and procedural regulations are developed. These active development, remedial, and secondary recovery operations on existing State tidelands leases appear to refute the statement in the text.
- [101] 10. P.528 (Section II.G.2.d.ii) - Offshore Oil and Gas Production par. 1 - The production data given for State offshore areas appears to be incorrect. The data is cited in the text as for the year 1975, however, it appears to conform better to 1976 statistics. The 1976 statistics should be changed to 56 million barrels of oil and 17 billion cubic feet of gas produced.

- [102] 11. P. 530 (Section II.G.2.d.ii) Belmont Offshore Field. The discussion of eight new development wells drilled by THUMS belongs in the Long Beach Unit, not the Belmont Offshore field.
- [103] 12. P. 530 (Section II.G.2.d.ii.) - Huntington Beach Field, Offshore Area. The Upper Main Zone waterflood project and Deep (nodular shale) zone will be among the later development projects from platform Emmy. The maintenance of existing waterflood operations will be the near future goal.
- [104] 13. P. 532 (Section II.G.2.d.ii) Federal OCS Exploratory Drilling Activity. para. 5 - The field identified by Shell in Well P-0301 No. 1 is the Beta field.
- The interval test data for Well P-0301 No. 1 appears incorrect. The potentially commercial tested interval (D zone) was perforated between 3456 ft. and 3609 ft. and tested at a calculated rate of 473 BOPD.
- [105] 14. P. 533 (Section II.G.2.d.ii) Federal OCS Exploratory Drilling Activity. Para. 3 - The interval test data for Well P-0296 No. 1 appears incorrect. The tested interval (F/G zone) was perforated between 3082 ft. and 3452 ft. The tests yielded 17.7 degrees API Oil at rates which calculated 62 BOPD from 209 feet of oil sand.
- [106] 15. P. 593-595 (Section II.H.3.a.). The discussion under General Technology appears confusing in many areas.
- The discussion of pre-nomination and pre-sale geophysical resource and hazards surveys should be divided into separate subjects. The surveys described are mixed and do not adequately describe the procedures.
- The pre-sale geological exploration should include discussion of deep stratigraphic tests.
- The development drilling procedure is a function of water depth and the objective reservoir depth and configuration.
- The statement that several wells are directionally drilled to develop a large area is misleading. There is no known instance in the offshore California area where drilling from a platform or manmade island did not include directional drilling - this is the rule rather than the exception.

The statement on Page 595, "The separated oil from the produced petroleum is transported...." should be reworded. It is suggested that the phrase "... from the produced petroleum..." be deleted.

16. P. 595 (Section II.H.3.b.) - The maximum water depth data in the proposed Sale No. 48 tracts of 135((4430 ft.) does not agree with Table II.H.3-1 of 1180m (3870 ft.).
17. P. 597 (Section II.H.3.b.) para. 1 - There are seven platforms located in Federal waters rather than five. This correction also applies to Table II.H.3-2 on Page 598.

The statement in Paragraph 4 that there were 100 exploratory wells drilled in lease P-0181 in the Santa Barbara Channel is incorrect. Two wells have been drilled on this lease, both in 1971.

Comments Lease Sale 48 DES - Volume II

1. P. 621 (Section III.A.) para.4 - The term "unproven reserves" is misleading and incorrect. The recoverable hydrocarbon volumes statistically derived for the lease sale area should be designated "oil and gas resource
2. P. 622-627 (Tables III.A-1-6) - The tables show development wells drilled prior to platform emplacement. These appear to be delineation wells, and should be identified accordingly.

The tables show constant G.O.R. data throughout the productive life of each area. If the resource analogy system should also be able to incorporate meaningful producing G.O.R. data. The depletion of the hypothecated hydrocarbon reservoir would be useful input into the oil spill risk analysis model.

The gross fluid production curve for San Pedro on Table III.A-2. appears to be erratic.

These production scenarios to the year 2000 appear to be projected to very conservative water-oil ratio (W.O.R.) values at the economic limits discussed in the average 25-year producing life.

- [111] 3. P. 631 (Section III.A.1.b.) para. 3 - The statement that, "During initial oil production, formation water volumes will represent 20 to 30 percent of the total extractable fluid." is inconsistent with the production scenario tables, which shows invariably clean oil production for the first three years.

The statement "...maximum ratio of formation waters to total oil extracted, may be 3 to 1." should be clarified. Many producing fields in California that have been water-flooded or are being waterflooded are projected to economic limits of up to 24 to 1. The annual report of the Conservation Committee of California Oil Producers showed the producing water-oil ratio (W.O.R.) for 1977 California state-wide production as 5.7 to 1.

- [112] 3. P. 631 (Section IIIA.1.b.) para. 4 - The discussion of the general rule of thumb that one barrel of water is produced for each barrel of oil produced over the economic life of a well may be translated to the cumulative water-oil ratio. The production scenarios in Tables III.A.-1-6 show instantaneous W.O.R. data less than 1 to 1 in the year 2000, with cumulative W.O.R.'s for all areas of .21 to 1 through the year 2000. The curve listed in Figure III.A-2, which is the basis for annual volumes of water produced, appears to be applied arbitrarily throughout the identified lease sale areas without consideration for California analogous data or the different anticipated reservoir and fluid characteristics that would be unique to each geographical area.

- [113] 4. P. 641 (Section III.A2) - The burial of a pipeline offshore in an area with the history of high seismic activity is questionable.

- [114] 5. P. 669, First Paragraph, Last sentence - While it is true that there have been no accidents attributed to natural causes alone in the Southern California bight, the 1969 blow out in Santa Barbara is partially attributable to geologic structure on the ocean floor where the well was being drilled. Thus, it is inappropriate to eliminate this factor from the oil spill risk model. There is sufficient data available which indicate that geological factors are important when assessing oil spill risks and should be incorporated in any model which assesses these risks.

- [115] 6. Page 671, Last Paragraph - The comment in the last paragraph seems to conflict with the OCS rule regarding the discharge of oil and grease into the marine environment. This conflict should be explained in the final ES.
- [116] 7. Page 725, Paragraph iii - On Page 725 there is a discussion of the use of dispersants for oil spill clean up. Has the Environmental Protection Agency approved any dispersant for use on the the Pacific Coast, and if so, what are these? Further, what are the conditions of their use?
- [117] 8. Page 769, Last Paragraph - The paragraph discussing Tsunamis on Page 769 is adequate when considering only the offshore facilities. However, Tsunamis can have a significant effect on any offshore structure, therefore, the impact of Tsunamis on onshore facilities should be fully analyzed and discussed in the ES. In addition, risk of Tsunami should be assessed for the entire coastline where OCS development may occur.
- [118] 9. P. 773 (Section III.B.1) Borderland, Inner Basins, and Banks. para. 2 - The discussion of the hazards along the Palos Verdes fault should be tempered by the fact of proposed oil and gas development, including water injection operations and multiple platform emplacement and pipeline routing to onshore, for the Beta Unit in San Pedro Bay.
- [119] 10. P. 773 (Section III.B.1) Borderland, Inner Basins and Banks. para. 3 - The statement that, "...most of San Pedro shelf is covered with similar flat-lying sediments." should be expanded to address the competency of shallow channel fill sediments on the shelf resultant from ancient river beds.
- [120] 11. P. 775 (Section III.B.1) Borderland, Outer Basins, and Banks. para. 3 - This paragraph consists of the statement "Secondary effects, such as seafloor substance resulting from fluid withdrawal should be investigated before oil field development." It is unclear whether this statement relates only to Santa Rosa and Tanner-Cortes Ridge areas, or the lease sale area as a whole. It is strongly recommended that the geologic framework of each area, including the geologic structural and stratigraphic data, along with existing oil and gas exploratory and/or development data, be further studied before suggesting subsidence potential.

- [121] 12. P. 788 (Section III.C.1.a.i) Exploration Phase.
para. 1 - The assumption that significant oil will not be spilled during the exploratory phase is presumptuous.
- [122] 13. Page 964, Last Paragraph - This seems incongruous since this is an area of great interest, contains major shipping lanes, etc.
- [123] 14. Page 965, First Paragraph, Last Sentence - How? What of existing tankering and possible traffic from Lease Sale 35 development?
- [124] 15. Page 965, Second Paragraph - How is this figured? What model was used? Does it figure in the possible use of O.S. & T.'s?
- [125] 16. Page 965, Paragraph ii - What of possibilities of further O.S. & T.'s?
- [126] 17. Page 967, First Paragraph - What about to Long Beach?
- [127] 18. Page 968, Second Paragraph, First Sentence - What is the basis for this assumption?
- [128] 19. Page 968, Last Paragraph - What of proliferation of separate pipelines?
- [129] 20. P. 1014 (Section III.C.9.a.) para. 2 - The Statement that, "...the State of California (Everitts, 1974) maintains that no effective drainage can occur 'over quarter of a mile'". is incomplete. Mr. D. J. Everitts reported to the Assembly Select Committee on Coastal Zone Resources that the distance over which drainage can occur depends on many things; i.e., the nature of the reservoir, the nature of the fluid in the reservoir, pressure, and other variables. Mr. Everitts did state, "As a practical matter, I would argue with practically anybody if he thought that he could prove that there was any really effective drainage over quarter of a mile. It depends on a lot of things."
- [130] 21. P. 1014 (Section III.C.9.a.) para. 2 - The data on well spacing is confusing. The distances cited for Hueneme, Dos Cuadras Unit, and State of California well spacing requirements indicate lineal measurements, while well drainage areas are measured in acres with assignable radii of drainage. Are these the same? The data is cited for Hueneme; there is no known oil and gas development at Hueneme; the Dos Cuadras field is not unitized as evidenced by competitive drainage along the Union-Sun common lease line; the State of California minimum "spacing"

- [131] 22. P. 1014 (Section III.C.9.a.) para. 2 - Sale No. 48 tract SPB 120 was offered under Sale No. 35 as tract 245 without consideration of a buffer zone. The tract is located easterly of the eastern boundary of State Oil and Gas Sanctuary 6871.2(a) Area No. 1.

Several other Sale No. 48 tracts in San Pedro Bay and Dana Point - San Diego areas are situated adjacent to State Oil and Gas Sanctuary 6871.1 and are tracts that were previously offered without receiving competitive bids under Sale No. 35. The Sale No. 48 tracts 131, 137, 141 and 142 were offered on Sale No. 35 as partial tracts 271, 278, 286, and 292 respectively and did show buffer zone offset. These Sale No. 48 tracts, along with DPSD 143 should be accorded the proper buffer zone offset.

- [132] 23. Page 1014, Third Paragraph - The third sentence of this paragraph appears to be a "non sequitur" to the second.

- [133] 24. Page 1014, Last Paragraph - This paragraph definitely implies that there will be drainage.

- [134] 25. Page 1015, Second Paragraph, Last Sentence - By this time, OCS development could preclude other mineral development.

- [135] 26. Page 1018, Conclusions - On Page 1018 a whole series of conclusions regarding marine sanctuaries in the OCS Sale 48 area are drawn. The conclusions effectively state that since there are no firm proposals at present, no analysis of the impacts on the marine sanctuaries would be discussed.

While there are no specific proposals yet before any federal agency, specific studies have been prepared which identify a wealth of environmental features which deserve protection. At a minimum, the ES must determine and analyze the effects of OCS developments on these resources. Further, the ES should analyze and discuss fully the impacts on the entire marine sanctuary program or programs as proposed.

[136]

27. Page 1137 - On Page 1137, the DES states: "It is assumed that no new refineries, treatment facilities, terminal facilities, or onshore pipeline acreage will be required. The only new acreage required for facilities as a result of the proposed sale would be 68 acres for four new operations bases (including helicopter pads, warehouse and office space, dockage, etc.)." It appears highly questionable, that with the maximum development potential under Lease Sale 48, no new production, transmission and/or storage facilities onshore will be required. As pointed out in the above comment, it is extremely important that the needed onshore facilities be firmly established early so that after development begins, permitting agencies, i.e., the Coastal Commission, Port districts, the State Lands Commission and affected local governments can respond to potential impacts as a part of this environmental review.

[137]

28. Page 1156 - On Page 1156 the DES states that construction of oil-related industrial sites in rural areas, particularly in Orange and Ventura Counties, is most probable. It goes on to say that: "Construction of equipment storage and marshalling yards, communication and navigation facilities, transportation centers, and associated urban development will all affect recreation. Equipment yards could infringe upon shoreline recreation by converting the backshore to non-recreational use, restricting access to the shore, converting wildlands to industrial sites and by altering aesthetics."

The DES, however, does not present or analyze the impacts of these developments. Rather, it assumes (pp. 1137 & 1235) these impacts will be addressed in a State EIR or through other reviews required by Federal, State or local agencies when specific projects are proposed. This approach of the DES appears to be highly undesirable. The location of substantial new industry in the rural coastal areas of Orange and Ventura Counties may be inconsistent with the State's adopted Urban Strategies Policy which stresses the concentration of development in already urbanized areas. Additionally, the California Coastal Act of 1976, which is at the heart of the federally approved State CZM Program, 1976, contains strong policies, supported by the Coastal Commission actions to date, for concentrating development in already urbanized areas, for maximizing public access to the coastline and protecting all existing and potential coastal recreational land.

These policies take on special importance in highly urbanized Southern California where coastal open spaces have become scarce and the demand for coastal recreation high.

The ES for this Lease Sale should explain how its interpretation of the Coastal Act policies justify its conclusion that Federal, State and local laws will ensure that the oil-related industrial development would be accommodated and in an environmentally sound manner. It seems paramount to consider development scenarios and their impacts at this stage rather than when production is underway and the permitting agencies are left with no alternative but to choose among evils, under severe time pressures, while virtually eliminating the option of the "no project" alternative.

[138]

29. Page 1159, Paragraph 3 - The purpose of this rather brief paragraph is to indicate the impacts which may be associated with refinery expansion or the construction of refineries. In other portions of the document it is assumed that there will be no need for the expansion of refineries or onshore production facilities. If this is the case, there is no need to analyze their impacts, however, if there is any expectation of some needed expansion or construction of refinery or production facilities, the analysis of the impacts needs to be thoroughly addressed far more than they are presented here.

[139]

30. Page 1211, State and Local Government Revenues - The discussion of the effect upon State and local revenues is entirely inadequate. It does not reflect the recent passage of Proposition 13 and the effects of it on the ability of local governments to derive revenue.

[140]

31. P. 1219 (Section III.E.15.d) para. 2 - The projected capital investment for subsea completions is incorrect. The 71 completions with equipment included at an average cost of \$2.5 million should total \$177.5 million.

Comments Lease Sale 48 DES Volume III

- [141] 1. Page 1223 - The section entitled, "Mitigation Measures" is entirely inadequate. Essentially, all that is included are rules and regulations. However, no specific requirements are included which indicates what will happen or what technology will be required to mitigate environmental impacts associated with offshore oil development.
- [142] 2. P. 1237 (Figure IV.A.6-1). The eastern and western boundaries of State Oil and Gas Sanctuary 6871.2(b) are incorrect. In both cases the boundaries should be simple north-south lines as described in the Public Resource Code. As shown on the figure the eastern extent of the sanctuary includes State oil and gas lease PRC 4031.1. The western extent is shown on the figure to include the vacant State tide and submerged lands south of State oil and gas leases PRC 308 and 309, while the boundary should exist as a straight north-south line approximately through the center of PRC 309.
- [143] 3. Page 1295, Estimates of Necessary Facilities - The need for "3" floating processors is not reflected in the discussion of shipping.
- [144] 4. P. 1301 (Section VIII.A.1.) para. 1 - The referenced section for discussion of buffer zones should be changed from III.D.9 to III.C.9.
- [145] 5. Page 1404, Section E. - On Page 1404-1419, a series of stipulations proposed by State and local governments is presented. The staff of the Commission find that the replies to each of these is entirely inadequate. For example, the proposed stipulations #14 and #5 regarding air quality would require the implementation of the best available control technology on the platforms or production facilities. The reply that the applicability of air quality standards in international waters is entirely remote of the issue addressed in the proposal. It is suggested that the BLM undertake a thorough analysis of these proposals and consider each as they effect OCS development.

Comments Lease Sale 48 DEIS Volume IV

1. Visual No. 1
- [146] a. State Oil and Gas Sanctuary PRC 6871.2(a) is shown incorrectly. It should extend from the Ventura-Los Angeles County line to Pt. Pinos.

- [147] b. State Sanctuary PRC 6871.1 should be extended to the northern boundary of Newport Beach City limits.
- [148] c. Visual No. 1 has numerous technical errors; platforms and wells are incorrectly located, names misspelled or omitted, map headings (titles and designators) do not follow the recommended or accepted cartographic format, proposed L.N.G. terminal locations are obsolete.
- [149] 2. All visuals should be dated in order to establish a time-frame of reference.
- [150] 3. Visuals Nos. 9 & 10
- a. The geology shown on Visual No. 9 is inconsistent with that shown on Visual No. 10. The significance of the white areas on Visual No. 10 is not clear. The age classification of geologic periods and eras in the legend is in error, basement rock delineation is inconsistent with accepted terminology, geologic units are either mis-labeled or colored wrong, and well locations do not agree with published coordinate

DEPARTMENT OF FISH AND GAME

- [151] The subject document adequately discussed the existing biological resources and identifies, for the most part, impacts which would result from the proposed lease sale. However, it does not provide sufficient compensation to offset potential impacts to living marine resources or resources dependent upon their survival.
- [152] With respect to discharges of waste from offshore developments, we offer the following comments on those wastes having the potential for long-term impacts.
- [153] It is recognized that the Environmental Protection Agency (EPA) is responsible for regulation of ocean discharges. However, the Department expects to comment on specific waste discharge requirements prescribed by EPA as they pertain to development and production of OCS oil leases. Of specific concern are the discharges of drill cuttings and mud, sanitary and domestic waste and formation waters.
- [154] As stated in the subject document, oil spills will occur and will present a most significant impact to living marine resources.

With regard to impacts resulting from oil spills to all living marine resources and mitigation measures, we are unable at this time to provide detailed comments for each component. However, the following specific comments regarding marine birds and mammals are generally applicable to the total marine ecosystem:

[155] A brief examination of the document has revealed that although it contains a thorough synthesis of the investigative findings (particularly those detailed in Volume 2, Draft Final Report, 1975-1976, Marine Mammals and Seabirds Survey), identifies the sensitive species and sensitive habitat and describes potential adverse impacts; it fails to communicate certain key points made by earlier BLM funded OCS investigators. For example, those areas designated as "Category A" (in Volume 2, Marine and Seabird Survey) and defined as having "extreme impact potential" are not fully presented in the EIS. The investigators expressed the views that these areas are of greatest importance to animals because one or more of the following conditions are met:

1. Year-round heavy use.
2. Predictable seasonable concentration of major populations.
3. Location of bird nesting areas or pinniped rookeries.
4. Presence of essential valuable species.

Oil and/or disturbance in these areas constitute an extreme threat to animal populations. The probability of catastrophic impacts--that measure of impact effecting entire populations and from which recovery is uncertain--is great because many animals are concentrated in one place and/or young may be present.

The EIS fails to present the investigator's recommendation:

[156] "The conclusion is inescapable that accelerated development of offshore oil resources is likely to be disadvantageous to natural populations of marine mammals and birds. Simply put, new development necessitates an increased level of human activity in the midst of shy and secretive species that only reluctantly coexist with man",

[157] Assuming that increased offshore oil resource development is inevitable, prudence demands that the well-being of neighboring animal populations be considered at all times. Location of facilities must be chosen so that:

1. Noise and conspicuous human activity does not disturb animals at places where they concentrate, and
2. Downstream drift of concentrated oil does not imperil these same populations.

To minimize detrimental impacts to animal populations we recommend:

[158] 1. That development be prohibited in OCS areas of greatest biological significance (Category A, Figure II-55). Development in other OCS areas of biological importance (Category B and C) should proceed only with extreme caution and also appropriate safeguards.

[159] 2. Should an oil spill occur, the immediate response should be containment:

- a. Restrict the free flow of oil, and
- b. Restrict the spread of floating oil.

- [160] 3. Clean-up and impact assessment activities should proceed in the following sequence:
- a. From the baseline (this document or Volume III - Principal Investigator Report), determine the size, location, and vulnerability of animal populations in the area or in the path of the drifting oil.
 - b. Give nesting, roosting, hauling, or pupping areas wide berth--disturbance due to visitation or aerial reconnaissance will compound the effects of oil contamination.
 - c. Retrieve floating oil and initiate clean-up on mainland beaches not subject to the extreme impact of disturbance.
 - d. Conduct impact assessment studies via (1) cautious on-foot survey of sensitive area (bird and pinniped colonies) and (2) standard ship and aerial surveys, using methods and timing of the baseline studies.

- [161] We concur with these recommendations and provide others below:

The EIS fails to emphasize the unique nature and importance of those areas that are most valuable. The most sensitive areas from the standpoint of marine birds and mammals in the whole of the Southern California Bight (SCB) exists on the north side of the Northern Channel Islands (particularly, San Miguel Island) and on the north side of Santa Barbara Island. Chronic oil pollution and occasional large spills in these areas could destroy whole breeding populations. Some of these breeding populations are unique in many respects; with some representing the bulk of the world breeding populations and other representing the only United States breeding populations. The waters to the north of San Miguel and Santa Barbara Islands are known to be especially productive for bird and mammals.

- [162] It should be emphasized that the marine bird and mammal colonies are currently experiencing (and have experienced) considerable environmental stresses in the form of pesticides pollution, introduction of feral animals, impacts on food resources, and disturbances by human at the colonies.

Mitigation measures considered in the EIS will at best attempt to minimize initiated impacts. Admittedly, "an irreversible or irretrievable commitment of fish and wildlife resources and their habitat could occur", and most certainly will occur, "in the area of a massive oil spill, or if areas are frequently subjected to chronic low levels of oil pollution (in addition to present natural oil seepage)".

- [163] Given the serious long-term potential devastating effects of the proposed leases, the proposed compensation measures are completely inadequate to compensate for the anticipated impacts on the marine resources.

- [164] One compensation measure not considered is mainland habitat acquisition and protection. This could partially offset some of the proposed losses. We recommend that strong consideration be given to this compensation alternative.

[165] The EIS states that "chronic oil pollution and spills will occur and the effects of this pollution on birds and mammals, as well as other marine resources, is unclear". The EIS fails to outline a monitoring program that will adequately evaluate the inevitable adverse effects that are expected to accompany oil resource development. As a minimum effect, the following monitoring program should be initiated in the next few months:

The March, 1978 BLM-OCS baseline study on birds and mammals should be updated as follows:

1. A few selected bird and mammal colonies and indicator species should be monitored annually to evaluate changes in the effects of oil pollution.
2. Channel Island and mainland beaches should be surveyed twice a month to evaluate changes in mortality of sea birds as a result of increased oil pollution. No data is presently available for the vulnerable north shore of San Miguel Island. It is essential to obtain such data as quickly as possible in order to interpret information collected in the future.
3. Offshore and aerial survey standard series transects should be conducted quarterly in order to update the baseline study and obtain current information to evaluate the significance of beach-cast mortality data.
4. The methodology and monitoring scheme employed during the baseline study should be maintained to obtain comparable, meaningful data. In addition, the extreme sensitivity of the bird and mammal colonies in question should be emphasized so that cleanup operations do not cause as much or more damage than an oil spill.

Having completed our review, the Department concurs specifically with the following statement presented in summary by BLM: "The BLM has a unique responsibility and opportunity to design regulations and procedures that can protect and promote the continued well-being of these valuable natural resources that will, under proper stewardship, be with us long after the last barrel of oil has been extract from Southern California Bight". We believe our comments will help BLM to achieve their responsibility.

We appreciate this review opportunity. If you have any questions, please contact Mr. Rolf Mall, Environmental Services Supervisor at 350 Golden Shore, Long Beach, CA, 90802, (213) 590-5140.

SOLID WASTE MANAGEMENT BOARD

We have reviewed the Draft Environmental Impact Statement (EIS) for the proposed OCS Lease Sale #48.

- [166] Our comments concern the disposal of wastes that may be generated as a result of the project. There are two areas of major concern, which require further discussion:

1. Exploration and development drilling operations wastes.
2. Oil spill wastes.

Exploration and Development Drilling Operations Wastes

These wastes consist mainly of drilling muds and cuttings, some of which are contaminated by oil or toxic substances. The contaminated wastes must be transported to shore for disposal, as required by OCS Order #7. The Draft EIS does not adequately address the disposal of these wastes. Although estimates are made of total amounts of drill cuttings and drilling mud to be disposed of, further estimates should be made of the contaminated amounts that require disposal onshore. A description of the possible physical and chemical properties of the wastes should also be included. These properties will determine the needed methods of handling and disposal onshore (i.e. landspreading, biological degradation, burial in a hazardous waste landfill).

An estimate should also be made of the impacts of these wastes on existing disposal site capacity. If it is determined additional sites are needed then those sites should be clearly identified in the final EIS. The impacts of opening new disposal sites, if needed, must also be addressed since they would result from the project.

Oil Spill Wastes

- [167] The second, and perhaps most important area of concern is the disposal of oil and oil soaked debris recovered during oil spill cleanup operations. While the direct impacts associated with oil spills are readily recognized, the secondary impacts resulting from disposal are not given due consideration. Section III. (E. 10) treats disposal of oil spill wastes in a rather matter-of-fact manner and does not present an adequate discussion of the severity of the problem. This section states that a "major spill, such as the 1969 Santa Barbara spill, would produce amounts of oily waste and debris in excess of the handling capability of refineries, re-refineries, existing landfills and incinerators". The remaining alternatives which the EIS identifies are disposal by burial or land-spreading. However, in the past burial has been done in unlined pits from which infiltration may occur, and landspreading has exceeded recommended application rates and thus threatened surface waters.

The major concern during cleanup operations seems to be to remove the evidence of a spill to an "out-of-sight, out-of-mind" location. The disposal site selections have often been made at the time of cleanup, under emergency conditions, and without proper siting considerations. The resulting impacts to the environment from improper disposal could be as severe as those attributed to the spill itself (i.e. contamination of drinking water supplies).

The problems of oily waste and debris disposal are discussed in the EPA publication "Oil Spill: Decisions for Debris Disposal", by SCS Engineers, Long Beach, California. This publication emphasizes advance planning in the selection of disposal sites for burial and landspreading of oil spill wastes and matters to be considered in making site selections. We believe the EIS should speak to the development of a contingency disposal plan consistent with the SCS Report. This includes a study of alternative disposal site locations, and an assessment of their environmental impacts. Contingency disposal sites to handle spills from the tanker routes should also be considered.

The California State Oil Spill Contingency Plan (May 1977) which was referenced by the Department of Fish and Game in their letter of comment (pp. 1440 of the EIS) does not adequately address advance disposal site selection. Section 515.1 of the State Plan gives the impression that disposal site selection would be made at the time of the incident by a Regional Water Quality Control Official. We believe this is not an adequate solution to the problem.

If you have any questions regarding these comments, please contact Barry McGee of my staff at (916) 322-7364.

Responses To:

State of California

- [1] The alternative of maximum production has been updated to include an emissions estimate (Section III.F.1). The impact analysis is based on the maximum daily emissions for the production scenario identified.
- [2] Discussions of mitigating measures, BACT, and jurisdiction over OCS have been upgraded in the Final ES.
- [3] The modeling results presented are worst-case conditions which would show the worst-case impact from Sale 48. Thus, impacts for different conditions (other trajectories, less emissions, etc.) would be less than those identified. This approach allows quantification of impacts for the purposes of this Environmental Statement.
- [4] Due to recent actions of the NOAA, Office of Ocean Management, regarding the marine sanctuary recommendations under active consideration, this section has been revised. As for a discussion of the impacts expected by such a designation, these can not be adequately addressed until the specific purpose of the sanctuary has been identified by NOAA. The actual purpose of such a designation may not become clear until a formal nomination document has been prepared by NOAA.
- [5] The size, location and resultant trajectory of an oil spill is difficult to predict and the cost will vary greatly depending on a great number of circumstances. The Outer Continental Shelf Lands Act Amendments of 1978 enacted on September 18, 1978 establishes an Offshore Oil Spill Pollution Fund of \$200,000,000 which should serve to mitigate any future financial loss by affected persons or agencies.
- [6] No new onshore production and processing facilities are anticipated. Only 4 operations facilities are projected of 15 acres each for a total of 60 acres. See Table I.A.2-3 for a summary of assumptions.
- [7] Protection is provided by Stipulation 5 which includes each ASBS. The EPA must approve all discharge from exploratory and development rigs. There are consistency requirements between the California Coastal Management Plan and the offshore operators.
- [8] An alternative buffer area has been added to Section VIII.A.12.

[9] OCS Order (No. 7), which this comment referenced, does not establish a criteria to determine the toxicity of drilling mud substances. Therefore, each substance that is considered to be potentially toxic must be considered separately. Factors that are considered for each potential toxic drilling mud substance are lethal concentration values, drilling mud (fluid) effluent, suspected toxic substance concentration, rate of dispersion and dilution, physical properties imposed on drilling mud substance in the well (high temperature and pressure), and availability of the drilling mud substance to marine biota.

Barite is extremely insoluble in near water (0.03 ppm at 25°C) and is considered nontoxic. Aqueous solutions of Ferrochrome or chorome lignosulfonates have toxicity (LC50-96) values ranging from 465 to 2,050 ppm (Chesser and McKenzie, 1975; Falk and Lawrence, 1973; and McAuliffe and Palmer, 1976)*. These substances may be discharged to the marine environment at concentrations extending to 2000 ppm. The lignosulfonates effluent concentration lowered through rapid dispersant and the absorption onto solids and rapid dispersant and dilution and chemical banding lowers the lignosulfonates toxicity to a concentration that is believed to be nontoxic.

*Chesser, B. G. and McKenzie, W. H.: "Use of a Bioassay Test in Evaluating the Toxicity of Drilling Fluid Additives on Galveston Bay Shrimp", presented at a Conference on Environmental Aspects of Chemical Use in Well-Drilling Operations, sponsored by Environmental Protection Agency's Office of Toxic Substances, Houston, Texas, May 21-23, 1975; Falk, M. R. and Lawrence, M. J.: "Acute Toxicity of Petrochemical Drilling Fluids Components and Wastes to Fish", Technical Report Series No. CEN-T-73-1, Resource Management Branch, Central Region, Environment Canada, 1973; McAuliffe, C. C., and Palmer, L. L.: "Environmental Aspects of Offshore Disposal of Drilling Fluids and Cuttings," paper SPE 5864 presented at the 46th Annual California Regional meeting, Soc. Pet. Eng. of AIME, Long Beach, CA, April 7-9, 1976.

[10] Toxicity applies to the lethal or sub-lethal effect of a substance on organisms. The 60 days applies to oil spill trajectories. Worst possible impact means that if a spill has not impacted a resource within 60 days, it will probably have weathered to the point where oil residual is insignificant. This explanation has been added to Section III.A.4.b.iv.

[11- The ES states that active faults are those faults that are
12] less than 11,000 years old. (Section II.A.2).

[13] Solid waste disposal due to accidental spills is addressed in Section III.E.10.

[14] This explanation has been added to Section III.E.10.

- [15] There is no data available on amounts of oil in chronic discharges. Every attempt is being made to eliminate chronic discharges which now appear to be solely limited to human error or accidents. There is also no data available on possible effects in the water column.
- [16] Determination of pipeline routings will be a detailed, long and expensive process. First, enough oil will have to be located to justify the expense of running a pipeline to shore. If a pipeline appears to be justified, a separate environmental assessment will have to be made. Also, a very close liason between Federal and State agencies will be required as part of the pipeline will be run across state lands. A State/Federal transportation task force is in the process of being formed.
- [17] Comments have been addressed below.
- [18] Mitigations measures have been discussed in Chapter IV of the ES. Operating provisions included in the proposal are discussed in Chapter I.

Additional detail about mitigation measures is required and provided in the form of specific contingency plans that must be submitted to the USGS for approval prior to exploration or development activities in OCS waters.

- [19-
20] Comments noted.

- [21] Regulation 3, Rule 310 of the Rules and Regulations of the Air Pollution Control District, County of Santa Barbara says:

A person shall not discharge into the atmosphere from any single source or any number of sources within one contiguous property, hydrogen sulfide or organic sulfides or a combination thereof which results in ground level concentrations at any point at or beyond the property line in excess of amounts shown in the following table, expressed in ppm, by volume, as hydrogen sulfide.

<u>Concentration</u>	<u>Average Time</u>
.06 ppm	3 minutes
.03 ppm	1 hour

Since this rule does not specify an allowable concentration at the point of emission, but instead at a point(s) of impact off the property of the source, it can indeed be considered as an

ambient air quality standard. The federal government has taken this same approach with the Prevention of Significant Deterioration regulation which specifies allowable increments. Both concepts require some form of modeling technique to determine the concentration at the stack required to meet such limitations.

[22] Air basin boundaries have changed since the printing of the draft report. These changes are reflected in the figures and text in the FES.

[23] The omission of the California NO₂ standard was a typographical error, it has been added to the FES.

The California 24 hour SO₂ standard has been changed since the printing of the draft report. The new standard, 0.05 ppm (131 mg/m³) at locations where the state standards for oxidant and/or suspended particulate matter are violated, has been included in the FES.

[24] At the time the draft statement was written, 1975 data was the only data available in a reasonably complete form. In that respect, 1975 was chosen as the base year. Since that time, 1976 and 1977 data have become available and were incorporated into the tables and figures presented in the FES.

The draft report indicates that TSP, lead, and sulfates are measured continuously, however the sampling generally takes place every sixth day for a 24 hour duration. This is noted in the FES.

[25] Data for Riverside-Rubidoux were checked for all monitoring methods. It was found that the ARB designated ozone measured by UV photometric or the chemiluminescent method not representative of the monitoring period. Therefore the data that appears in the FES is oxidant measured by the colnometric method.

The ARB summaries were checked for Santa Barbara at State Street, and, as summarized in the quarterlies, 9 exceedances were found. Further checking with the ARB on November 14, 1978 revealed that most data prior to June 1, 1975 required application of an adjustment factor to the hourly averages. This factor had not been applied in the quarterly summaries which resulted a greater number of reported exceedances than actually happened. The correct number of exceedances at Santa Barbara State Street is 5. This value is shown in the Final ES. In response to the comment that State Street had 32 exceedances in 1975, confusion between the abbreviation for Satellite, "Sate." and the word "State" may have caused the reader to mistake one for the other. The adjusted number of exceedances for Santa Barbara Satellite (Sate.) is 32.

Data for Costa Mesa was checked and found to be designated as representative by the ARB. However, August data is missing and this is noted in the FES.

- [26] Data for Costa Mesa and La Habra were checked and found to be designated as not representative by the ARB in 1975. Data for 1976 and 1975 were included in the table.

- [27] The title of Table II.H.1-4 has been changed to reflect that the table indicates the number of days exceeding the California standard.

The data for Riverside-Magnolia were checked and four exceedances of the State standard were found. This change is reflected in the FES.

- [28] A change in the isopleth pattern to better reflect actual concentrations appears in the FES.

- [29] The error in the table was made in transcribing and it should only include Annual, Maximum 24-hour and Maximum 1-hour averages. This change appears in the Final ES. In addition, the table in the FES includes the number of days in which the California State standard was exceeded.

- [30] Data for Santa Barbara were checked for 1966 and 1972 and found to be designated by the ARB as not representative. Therefore these two years have been eliminated from the trends in the FES.

- [31] Figure II.H.1-11 was missing footnotes for the Santa Barbara and San Diego stations. These footnotes have been added in the FES.

CO data for Santa Barbara were checked for both 1966 and 1972 and found to be designated as not representative by the ARB. As a result, the data for 1966 and 1972 has been eliminated from Figure II.H.1-11 in the FES.

The South Coast Air Quality Management District was contacted regarding the water vapor interference problem and it was determined that data prior to May 1968 for Downtown Los Angeles and Lennox was not representative. This is reflected in the FES.

- [32] The text was corrected and now includes a discussion on the NO₂ trends.

- [33] Emissions from Sale 48 are maximum hourly emissions.

The lower SO₂ emission rate computed by the ARB staff is noted. The impact of Sale 48 on SO₂ air quality was found to

be negligible even with the higher emission rate. Thus, a change in emission rate would not alter the conclusions.

The heading of Table III.D.1.a-1 has been corrected to read THC.

In the 100 percent tankering scenario, emissions from gas compressors were not included offshore; however, these emissions are small when compared to those associated with tanker loading and would not change the conclusions.

Table III.D.1.a-1 has been corrected and documentation has been provided.

- [34] The scenario that was modeled represents the worst-case that would realistically be encountered for the production rate that was used.
- [35] Tanker and tug transit emissions of NO_x and SO₂ during transit are similar to those during loading. It was assumed that transit and loading would not occur simultaneously, and the loading situation was chosen as the worst-case since these emissions occur from a fixed location and would have the greatest impact.
- [36] All gas processing was assumed to occur onshore as described in Chapter I.
- [37] The emissions for the Point Conception LNG terminal were taken from the referenced sources and used for comparison purposes only. Moderate changes in emission rates will not alter the conclusions of the study.
- [37-38] Since all onshore facilities will go through New Source Review for all pollutants emitted which are in non-attainment areas and PSD review for all attainment pollutants, their impact will be offset or within standards. Thus, the analysis in the ES is shown only to identify any potential air quality conflicts or problems.
- [38] The BLM has received information from the major oil firms now involved with lightering operations off the Southern California coast that lightering operations will have discontinued by 1986.
- [39] The 9 ppm concentration is the correct 8-hour federal standard. This is reflected in the FES.
- [40] The trajectories were artificially constructed to pass directly over the points of highest emission fluxes and continue until maximum ozone formation occurred. Except for the validation

runs, specific days were not modeled. Parallel trajectories would show less impact on ozone air quality since they would encounter lower emission fluxes.

- [41] Changes in Chapter VIII have been made.
- [42] Section on mitigating measures has been rewritten.
- [43] The project includes all known and economically feasible methods of spill prevention.
- [44] The statement attributed to p. 1135 cannot be located. However, a more detailed analysis occurs in Section III.E.10. See response to [14] above.
- [45] The maximum water depth ranges were given to indicate available drillships having different maximum water depth ranges. In the near future, industry predicts drillships equipped with dynamic positioners would have the capability to drill in maximum water depth of 6,000 feet. See Section for corrections.
- [46-
47] Changes have been made in ES to reflect comments.
- [48] ES changed to reflect comment.

The 5000 feet exploratory well should be a development well. The ES has been appropriately changed.
- [49] The sentence in question states what the estimated formation water production rate may be over the life of a well. In light of the fact that formation water cuts may exceed U.S. Geological Survey estimates by about 10 percent, the total additional formation water produced over the life of the well should not significantly change the estimated formation water production rate (taken from UCLA's referenced report).
- [50] ES has been changed to reflect comment.
- [51] The potential of oil spills, however, does exist from shearing of casing although it has not happened in the Wilmington Field.
- [52] The sentence has been stricken.
- [53] The term has been corrected as suggested. "DOI" has been added for clarification.
- [54] "Passage" includes accidental as well as deliberate introduction of oil into the water.
- [55] See response [9] above.

- [56] All of the information in the Final ES is used in the preparation of the Secretarial Issues Document (SID) upon which the sale decision is made.
- [57] Refer to response [10] above.
- [58] Section 307(c) of the Federal Coastal Zone Management Act (CZMA) provides a mechanism whereby a coastal state which has a Coastal Zone Management Program approved by the Secretary of Commerce can require consistency certification from an applicant for a Federal permit or from a person who submits a plan for exploration or development of or production from the Outer Continental Shelf, if the activities contemplated under any of the above permits or plans may affect the state's coastal zone. Therefore, before any development is permitted, both the State and Federal Government will have an opportunity to check for equipment adequacy in potential areas of concern.
- [59] An alternative to create a larger buffer has been added, Section VIII.A.12.
- [60] Comment noted and changes made.
- [61] The suggested change has been made.
- [62] The error in Table III.A.4.b-2 has been corrected. The error on p. 744 of the DES, has also been corrected. The Irvine Coast and Newport Beach Marine Life Refuges are in Segment 24 and they are listed.
- [63] The opening paragraph has been rewritten.
- [64] The correction has been made.
- [65] Correction has been made to reflect comment.
- [66] The last sentence in that paragraph states that, "Other forms of failure (e.g., liquefaction, scouring) are difficult to detect and it has not been possible to determine their prevalence." The possibility of mass movement could exist on other tracts but are not identified at this time.
- [67] The reference has been added to the text.
- [68] See reference section of ES for bibliography.
- [69] A 7.75 earthquake would have to be generated locally for a disastrous tsunami to occur due to seismic activity. The estimates for runup from tsunamis from distant origin are a maximum of 22 feet for the area (FES 76-13 p. II-143, USGS).
- [70] Corrections have been made as suggested.

- [71] Before any drilling occurs, a detailed analysis of faults and other geologic hazards will be conducted.
- [72] The reference is the 1974 study by the U.S. Army Waterways Experiment Station, Houston and Garcia, p. A3.
- [73-74] Active faults have been redefined in the FES as 11,000 years or younger as suggested.
- [75] See response to [15] above.
- [76] See response to [16] above.
- [77] Comment noted. See Section VIII-A.1.
- [78-79] Comment noted.
- [80] See response to [6] above.
- [81] The oil spill model used in the ES indicates that oil spills could reach Baja and the central California coast. That is why that description has been included.
- [82] The location of resources cannot be described in detail before a sale is held due to the proprietary nature of such information. That is why the discussion is generalized over a fairly large number of tracts. Developmental ES's will provide the detailed analysis of individual tracts.
- [83] Comment noted. The date of the Visuals is 1977 as indicated in the Legend.
- [84] See response to [5] above.
- [85] As the statement indicates, oil spill impacts on possible marine sanctuaries has not been accomplished as they have not been designated yet. However, all identified critical marine habitats have been analyzed.
- [86] Concerning oil spills off San Diego, this may be the case in some circumstances for proposed leases off San Diego, but not in the case of Tanner-Cortes where prevailing currents flow southeasterly paralleling the Baja coastline producing spill trajectories as far south as latitude 28° with very few predicted to reach land. Those which do reach land use scattered widely along the Baja coast and strike shore only after long residence times at sea.
- [87] The basis for the statement "At least in the case of San Diego's beaches, sea currents within the Southern California Bight will bring oil spills from leases proposed off of San Diego and the Tanner-Cortes Bank directly to its beaches," has not been identified. Results of the Department of Interior Oil Spill Model show that if a spill did occur in the

Tanner-Cortes Bank area there would be no impact on San Diego beaches within a 30 day period and a possibility of 1 percent of a spill impacting within a 30 to 60 day period (the oil would be so well weathered it would have little if any impact). The model predicts that a spill occurring on the proposed tracts immediately off the San Diego area could have a possible 5 to 7 percent chance of impacting the San Diego shoreline within 3 days, 17 to 18 percent chance of impacting within 10 days, 21 to 23 percent chance of impacting within 30 days and a 22 to 24 percent chance of impacting if no recovery or diversionary efforts are made.

- [88] The G.O.R. is an estimate based on the undiscovered recoverable oil and gas. A 't is difficult at this preliminary stage to determine precise production rates, these are merely probable estimates that could include both wet and dry gas.
- [89] All oil for the Santa Barbara Channel is assumed to be tankered from Ventura and an offshore storage and treating facility (70 percent going to Los Angeles and 30 percent to the San Francisco Bay area). Page 4 of the ES states that assumption.
- [90] The last development wells are assumed to be drilled in 1990. If you add 25 years of production to that year, it would be 2015; adding the time necessary to shut down and remove platforms, it would be about 40 years after initial production began in 1982.
- [91] The producing life of each field is assumed to be 25 years. The overall activity in the entire proposed sale area would be about 40 years, including platform removal and shutdown.
- [92] The LNG section has been updated.
- [93] A legend has been added to Figure II.A.2-1.
- [94] "Production" has been added to the sentence.
- [95] The tables are self explanatory and further discussion would not add to their meaning.
- [96] The table heading states that it is a petroleum resource potential summary for the Outer Santa Cruz and Santa Monica Basins.
- [97] The footnote on the table states that it is based on cumulative production.
- [98] Comment noted.
- [99] The reference has been corrected to USGS Open File Report 77-593.
- [100] The statement has been deleted.

- [101-
102] Corrections have been made as suggested.
- [103] Comment noted.
- [104] Beta field has been added and test interval has been corrected.
- [105] Corrections have been made as indicated.
- [106] See section for corrections.
- [107] The maximum water depth data in the proposed Sale No. 48 tracts of 1350m (4.430 feet) does agree with Table II.H.3-1 of 4,430 feet for Tanner-Cortes. See section for correction.
- [108] See section for correction.
- [109] Reserves has been replaced by resources as suggested.
- [110] Correction has been made as suggested.
- [111] ES has been changed to reflect comments.
- [112] The information given in Tables III.A.1-6 does not cover the entire life of the oil field. Information was extrapolated to the year 2000 only.

The Formation water estimates given in Tables III.A-1-6 were based on best estimates provided by U.S. Geological Survey. The following is the information Formation water estimates were based on:

<u>Year of Production</u>	<u>Produced Water per barrel oil</u>
1 thru 3	0.000 barrels
4	0.031
5	0.064
10	0.266
15	0.563
20	1.041
25	1.941
28	3.000

When calculating annual formation water produced for years that did not have specific values, preceeding values were used.

- [113] Prior to granting approval to bury offshore pipelines in an area with a history of high seismic activity, an environmental assessment would be conducted to determine the safety of the pipeline.

- [114] Natural causes, as used in this application, refer to causative factors such as earthquakes and tsunamis. Geologic structure is a factor in any drilling and, as such, is automatically included. However, there is no data available for comparing one area to another based solely on this factor.
- [115] The paragraph is not in conflict with existing rules, but a synopsis of sections III.A.1.b. and III.C.2.
- [116] Several dispersants have been approved for use. For an up to date listing and discussion of conditions for use, one should write to Environmental Protection Agency, 100 California Street, San Francisco, California 94111.
- [117] A recent study by the U.S. Army Waterways Experiment Station (Houston and Garcia, 1976 p. A3) concludes that, "The probability of a destructive, locally generated tsunami occurring in Southern California is not considered very great..."
- [118] Comment noted.
- [119-120] Before any development activity occurs, a detailed site-specific geologic analysis will be conducted as to sediment stability and other geologic hazards.
- [121] The statement is based on the fact that, of the many thousands of exploratory wells drilled in offshore waters, there has never been an accident resulting in any oil spill.
- [122-123] The information provided in this paragraph is based on the best available data provide in POCS Reference Paper No. VI (Oil Spill Risk Analysis of Proposed OCS Sale No. 48).
- [124] See Section III.A.b.i., Description of the Model, and POCS Reference Paper No. VI, Oil Spill Risk Analysis of Proposed OCS Sale No. 48.
- [125] Three O.S. and T.'s were estimated for the Sale No. 48 crude oil tanker-pipeline transportation scenario. The estimate was based on the best available information.
- [126] The relative impacts of these activities on shipping for the Southern California Bight area including Long Beach is given in the Proximity Analysis (Appendix F). The main crude transportation to Long Beach for Sale No. 48 would be barges from Ventura.
- [127] The assumed location of the fixed structures at the middle of the tracts was made by this office for the Proximity Analysis (Appendix F-1).

- [128] The authority to manage the oil and gas pipeline for Sale No. 48 in Federal water is Special Stipulation No. 6 (Section IV.B): "The lessor specifically reserves the right to require that any pipeline used for transporting production to shore be placed in certain designated management areas. In selecting..."
- [129] "As a practical matter" has been added to the statement.
- [130] The paragraph has been rewritten.
- [131] Alternative VIII.A.1 discusses a three-quarter mile buffer zone and includes all tracts adjacent to State Oil and Gas Sanctuaries.
- [132] The sentence has been deleted.
- [133] The paragraph has been deleted.
- [134] "...or preclude it in localized areas" has been added to the paragraph.
- [135] Comment noted. This section has been completely revised.
- [136] Section III.F.1 discusses the maximum development scenario.
- [137] The key word is "proposed". The statement is that "The probability is high that...sites will be proposed..." Potential impacts are presented but cannot be quantified because the industrial developments existence is speculative and no specific information is available to warrant a reasonable analysis. The Interior Department has no control over where onshore developments on non-Interior controlled lands may be proposed or approved. Thus these types of proposals must be controlled by State or local governments and analysis of specific projects falls within the purview of their environmental review process. If industrialization of rural coastal areas is inconsistent with California's Urban Strategies Policy or Coastal Act Policies, then we presume that any necessary development would be channeled into existing urban areas and/or expansion or revamping of existing facilities.

Federal, State and local laws appear to provide the enforcement and jurisdictional authority to assure that environmentally acceptable siting and discharges occur. It is further assumed that the appropriate agencies or jurisdictions have the authority to enforce these requirements. Some recent examples of this control include the SOHIO Project, abandonment of a proposed offshore terminal in Santa Barbara County and improvement of existing oil storage tanks in that county in return for a permit for increased capacity.

- [138] This paragraph has been deleted. No new refineries are projected as a result of the proposed Sale.
- [139] The section has been rewritten to reflect Proposition 13.
- [140] Correction has been made.
- [141] OCS Operating Orders, Stipulations and NTL's as well as CFR's require specific actions of operations. The entire text of these regulations has not been reproduced in the ES in all cases.
- [142] Figure has been corrected as suggested.
- [143] "3" floating processors (offshore storage and loading facilities - O.S. & T.) are described in Section I.A. The three O.S. & T. for Sale No. 48 are located as follows: West end of Santa Barbara Channel, near Santa Barbara Island, and Dana Point-San Diego area.
- [144] Correction has been made.
- [145] BLM is making a thorough analysis of these stipulations and they will be considered as lease stipulations before a sale is held.
- [146-
148] An errata sheet has been added to this Volume indicating inaccuracies.
- [149] Visuals are dated 1977.
- [150] An errata sheet has been added to the Visuals to indicate inaccuracies.
- [151] We believe adequate safeguards exist to protect and affect potential deleterious impacts on living marine resources.
- [152-
154] Comments noted.
- [155] See Table III.C.1.d-4.
- [156] No recommendations were made in the above mentioned statements. Statements of a similar vein are found throughout the ES.
- [157-
160] Comments noted.
- [161] See Table III.C.1.d-5.
- [162] A discussion of the past and existing impacts to the Channel Islands ecology are found in Section II.F.3.e.

- [163-
164] Section 308 of the Coastal Zone Management Act of 1972 as amended addresses the subject of compensation, grants and assistance to states affected by oil and gas development.
- [165] BLM agrees that an effective monitoring program should be implemented to evaluate the on-going effects of OCS oil and gas development on the marine environment, including bird and mammal resources. BLM is currently evaluating the extensive baseline studies conducted in the Southern California Bight over the past three years to determine what indicators in the environment to monitor and what effects the development will have on these indicators and other parts of the marine ecosystem. Certainly the design of any BLM monitoring program should build on the results and insight gained from the baseline program. At the present time, the Pacific OCS Office has identified some studies to identify effects and indicator methods to detect impacts in the marine environment for supplemental funding in the FY 1979 studies budget and the FY 1980 budget. BLM will be considering these studies and others to update and revise the regional study plan for Southern California. The Pacific OCS Office will be inviting State representatives to participate in this meeting as it has in the past.
- [166] Solid waste is discussed in Section III.E.10 of the ES.
- [167] Disposal of oil and oil soaked debris as a result of possible oil spills is a complicated process that is highly dependent on the specific area and also can change as a function of time of year, weather conditions, etc. This is a part of each oil spill contingency plan that must be submitted to and approved by USGS prior to any drilling. Section 307(c) of the Federal Coastal Zone Management Act (CZMA) provides a mechanism whereby a coastal state which has a Coastal Zone Management Program approved by the Secretary of Commerce can require consistency certification from an applicant for a Federal permit or from a person who submits a plan for exploration of or development or production from the OCS, if the activities contemplated under any of the above permits or plans may affect the state's coastal zone.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

24 NOV 1973

OFFICE OF THE
ADMINISTRATOR

Mr. Frank Gregg
Director, Bureau of Land Management
U.S. Department of the Interior
Washington, D.C. 20240

Dear Mr. Gregg:

The Environmental Protection Agency (EPA) in accordance with its responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act, has reviewed the draft Environmental Impact Statement (EIS) on the Proposed 1979 Outer Continental Shelf Oil and Gas Lease Sale Offshore Southern California (OCS #48). Specific comments are enclosed.

- [1] This proposal involves the offering of oil and gas leases for two hundred and seventeen tracts offshore Southern California and is the second OCS Lease Sale in this area that has been subject to the environmental analysis requirements of the National Environmental Policy Act. This sale, like OCS #35, involves a majority of lease offerings in water depths greater than 300 meters in a geologically unstable area where unique and sensitive biological resources are at risk. When EPA reviewed the draft statement for OCS #35 in December 1975, we concluded the description and analysis of the technology necessary to develop hydrocarbons under these circumstances, (especially considering the seismic hazards) was insufficient to determine the environmental acceptability of the proposal. The questions we raised at that time regarding system vulnerabilities, possible environmental consequences, and probable mitigation, have not yet been answered. Because of this continuing deficiency and because of further information problems regarding water quality and air quality issues, we have rated this EIS as Category 3 - Inadequate.
- [2] The subject of deepwater leasing and development in the absence of relevant controls and regulations continues as an unresolved issue between our agencies. Once again we point

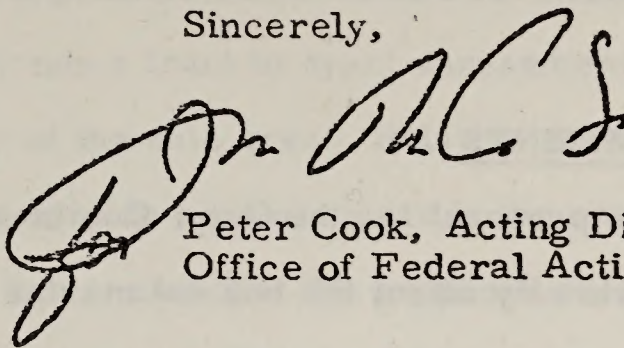
out the need to fully evaluate this evolution in the leasing program that is prompting new technologies and procedures that have no precedent in existing regulations. It is clear that at some point conventional technology ceases to be technically and economically extendable into deeper water and that unconventional platform designs and subsea systems become preferable. While the U.S. Geological Survey's proposed platform verification program offers a potential solution with regard to assuring platform integrity, there is still no means of regulating the new subsea technology that this lease sale may necessitate or encourage (the EIS projects 71 such installations). The final statement should fully analyze all available information on these technologies to assess failure probabilities and impacts. This is especially critical in view of the unquantified impact that the endemic geologic hazards may impose on this technology. Further, we believe the Department must develop Deepwater Operating Orders to not only provide specific minimum standards for safe operations, but to assist industry in attaining low risk systems. It is our recommendation that the 140 deep tracts in this sale not be offered. Experience should be accrued from the deepwater tracts leased in Sale #35 and this information should be comprehensively evaluated and used as input to the necessary regulations for subsequent deepwater development. We believe that continuation and acceleration of deepwater leasing and development in the absence of relevant standards and controls could lead to environmentally unacceptable consequences. We further suggest that a generic impact statement on the Department's decision to engage in broadscale deepwater leasing be prepared to fully apprise the public of this pioneer technology, its possible environmental consequences, and the structural and regulatory safeguards that will be required.

- [3] In light of the extreme importance of San Miguel Island to the support of a diverse pinniped community and the sensitivity of these animals to impacts of spilled oil, EPA recommends that the thirty-four Santa Barbara Channel tracts (1-17, 21-25, 31-36 and 48-53) be deleted from this and all future sales. Twenty-seven of these tracts are among those 140 deepwater tracts recommended by EPA for deletion.

Our specific comments address other environmental problems including those associated with drilling mud disposal and its effects, recommended changes to proposed stipulations to protect coral resources of Tanner-Cortez Bank, and air quality problems that will be exacerbated by the activities arising from intensified oil and gas development in the sale area.

We appreciate the opportunity to review this statement and hope our comments will assist in the development of the final.

Sincerely,

A handwritten signature in black ink, appearing to read 'Peter Cook', written over the typed name.

Peter Cook, Acting Director
Office of Federal Activities (A-104)

Enclosure

SPECIFIC COMMENTS ON DRAFT ENVIRONMENTAL
IMPACT STATEMENT ON THE PROPOSED OIL AND GAS
LEASE SALE OFFSHORE SOUTHERN CALIFORNIA (OCS #48)

WATER COMMENTS

The lease proposal for the Outer Continental Shelf Sale No. 48 could adversely affect the coastal marine environment through development, routine operations, and increased susceptibility to natural disasters.

- [4] 1. In Section III. A. 4. a. v. of the Draft EIS, the following statement appears in reference to seismic events:

"There has never been an offshore accident in Southern California attributable to natural causes alone and, therefore, due to the lack of appropriate data, these were not factored into the oil spill risk model."

Although no measurements of the results of an earthquake (offshore or onshore) have been made, the potential impacts of such an event must be assessed. An earthquake of sufficient magnitude could cause well blowouts, underwater landslides, and pipeline breakage. In a seismically active area such as Southern California, the probability of a substantial earthquake during the proposed life of the leases is significant. Section II. A. 2. a. on the seismicity of the area should be expanded to examine earthquake potential in this region and related environmental impacts. The possibility of a seismic event should either be included in the oil spill risk model or considered separately. Estimates of potential damages resulting from the maximum credible accident as well as less severe accidents

- [4] should be made and evaluated. Spill contingency plans should address the range of potential accidents. Most importantly, EPA recommends a tract by tract assessment of the seismic susceptibility of the sale area. Relative ease and effectiveness of spill clean-up also should appear in the analysis.
- [5] 2. Section II.A.2.b. notes that the proposed sale would triple the number of leases in the Tanner-Cortes area. The seismicity of this area is not evaluated in the Draft EIS, but it is mentioned that several of the lease areas are sites of major seafloor instability. The bank is also an area of considerable biological productivity. The impacts of the proposed action in this area have been poorly described.
- [6] In this connection, EPA finds the stipulation No. 8 to mitigate impacts on Tanner-Cortez Banks (DEIS p. 1245) inadequate to protect the diverse communities of the Banks. EPA recommends that no oil and gas development activities be permitted within the 80 meter isobaths until such time that the potential impacts of these activities on the community dynamics of the Banks can be assessed. Furthermore, no discharges of drill cuttings, drilling muds, garbage, untreated sewage, or other solid waste should be permitted within 5 nautical miles of the 80 meter isobaths of the Banks, as was required in earlier stipulations for the Banks.

[7] In the decision to deny a permit to harvest Allopora californica, BLM stated that "no harvesting would be permitted until adequate data on growth rates, recruitment, natural mortality, age at reproductive maturity, and fishing mortality are available." (Coral Harvesting Permit Decision, Sept. 20, 1978, to Robert A. Todd, from Herbert S. Emmrich, Acting Manager, BLM Pacific OCS Office). This commendable approach should be extended to encompass communities judged to have special value, such as Tanner-Cortez Banks, because this information, when properly collected and interpreted can lead to well-informed management decisions. EPA recommends that until such information is available, drilling activities in the biologically sensitive areas be postponed.

[8] The above approach is consistent with the BLM approach to the disposal of formation waters (DEIS p. 1245) where these waters must be re-injected "if there is any question regarding the effect of the formation water upon local marine life." On page 1246 the DEIS states that based on the results of the biological survey to be undertaken by the lessee, the lessee may be required to relocate or modify his operations or satisfy the supervisor that his operations will not adversely affect the area. The survey will not provide adequate information to make these decisions as it is presently designed. Please see our comments on the biological survey for recommendations on how it can be improved (p. 6 of these comments).

[9] 3. In light of the extreme importance of San Miguel Island to the support of a diverse pinniped community (DEIS, p. 327) and the sensitivity of these animals to impacts of spilled oil, EPA recommends that the Santa Barbara Channel tracts 1-17, 21-25, 31-36 and 48-53 be deleted from this and all future sales. The DEIS (p. 901) identifies these as the tracts where spilled oil would result in the greatest potential for impacting San Miguel Island and its special biological resources. The potential for oil spills from the Santa Barbara Channel area are particularly significant because of the intensive shipping through the channel, including the tankering of Alaska crude oil. This cumulative situation makes the threat of oil spills even more serious than the potential resulting from the drilling activities alone. EPA believes the significance of this potential impact is great enough to warrant tract deletion because of the irreplaceability and irretrievability of this important marine resource. If a major oil spill were to hit the Channel Islands during a time that marine mammals were inhabiting the shores, the spill could deplete the populations to a point that would make population recovery highly uncertain. And, at least one of the species, the Guadalupe fur seal, is already endangered. (DEIS, p. 327)

[10] 4. An alternative is proposed that petroleum extracted from the southernmost tracts (near San Diego) be barged to Los Angeles rather than building a pipeline for transport. According to

Table VIII.B.6-1, the barge alternative would continuously degrade water quality to a greater degree than the pipeline alternative. It would also present a greater probability of major spills that a pipeline would. The barge alternative may be attractive due to lower capital costs, however the impact on water quality will be significant. Mitigation measures to eliminate or minimize operating barge discharges should also be analyzed and included in costs.

- [11] 5. Section II.H.5.f. reads "To date, no system or equipment has been developed which is 100 percent effective in controlling and removing pollution under all weather and sea conditions. Heavy emphasis continues to be placed on preventing oil spills; . . .". The most likely scenario of a major spill in the Santa Barbara Channel might include several more or less futile attempts at offshore cleanup, the success of which will be a function of the weather and the availability of suitable equipment, followed by a large scale, labor intensive beach shoreline cleanup effort. It should be noted that the technology for beach and shoreline cleanup is now approximately the same as it was during the cleanup of the 1969 platform blowout. It is therefore, safe to assume that another major spill in the same area could have a very similar end result--massive contamination. While the draft EIS makes clear the probability of a major spill from a platform, the actual nature and consequences of a cleanup operation are

not presented. The final should be revised to fully address this possible impact.

[12]

6. EPA recommends that the Notice to Lessees and Operators for Biological Surveys (NTL 77-4) be expanded to include observations of organism behavior and community dynamics as indicators of environmental stress. The NTL states that continuous video tape and 35mm color photographs will be included in the biological surveys (DEIS, p. 1257). If properly set up, this photographic array could provide valuable in-situ information on the community dynamics of a drill site and could be used to monitor some effects of oil and gas drilling and production on a day-to-day basis.

This NTL could provide USGS with an early warning system of environmental stress resulting from drilling activities which the present survey and monitoring programs do not provide. NTL 77-4 with the suggested modifications, should be required for all tracts overlying hard bottoms offered in lease sale #48, especially those in the Tanner-Cortez Bank area.

AIR COMMENTS

[13]

We have significant environmental concerns regarding the proposed action since (1) it may hinder the local agencies' ability to attain the public health related standards, (2) it appears to be inconsistent with the draft nonattainment area plans that currently exist, and (3) it has the potential to contribute to violations of both state and federal air quality standards.

The Clean Air Act Amendments of 1977 mandate the attainment and maintenance of National Ambient Air Quality Standards (NAAQS) as a means of protecting public health and welfare.

Santa Barbara, Ventura, Los Angeles and San Diego Counties have been designated nonattainment areas for several pollutants, pursuant to Section 172 of the Act, and are required to prepare plans showing attainment of NAAQS by 1982, with possible extensions to 1987 for CO and Oxidant.

Section 176(c) states that "No department, agency or instrumentality of the Federal Government shall... support in any way or provide assistance for... any activity which does not conform to

a plan approved or promulgated under Section 110". We therefore encourage the BLM to work with the local nonattainment area planning lead agencies throughout the development of the FEIS to ensure consistency of the proposed project with the applicable nonattainment area plans (NAP).

[14] Additionally, BLM should coordinate resolution of the secondary impact issues, i.e., population growth, with the affected counties. The growth inducing impacts on air quality were not addressed in the DEIS. Major population changes are projected for Ventura County. During the peak years of activity, 1986 to 1990, Sale No. 48 could more than double the projected population increase. Significant air quality impacts may result and should be discussed for each of the five counties affected. Population percentage increases should, where possible, be addressed in terms of localized impact rather than regional. For example in Ventura County, a 3.01% county population increase could translate to a 20-25% increase in the cities of Oxnard and San Buenaventura if that is where the population would be located.

[15] It is important that BLM be aware that federal funding for local projects (i.e., sewage treatment plants, highways, etc.) will be based upon locally adopted, state certified and federally approved population projections. Current NAP planning efforts do not appear (as in the case of Ventura County) to include a contribution to growth projections due to this action.

- [16] The FEIS must address the primary impacts (emissions resulting from operations) and secondary impacts (emissions resulting from increased population growth) associated with the project, and provide mitigation measures designed to offset the air pollution emissions which contribute to Federal or State ambient air quality standard violations.
- [17] The DEIS indicates that under the normal tankering scenario, Sale No. 48 increases maximum 1-hour NO_x concentrations from 0.47 ppm to 0.66 ppm, (pg. 1066) an increase of 0.19 ppm due solely to Sale No. 48. The State 1-hour NO_x standard is 0.25 ppm. Existing OCS development will exceed this standard (N48 scenario) and Sale No. 48 emissions will worsen the problem (pg. 1042). Given the maximum background concentration of 0.10 ppm (pg. 1042), the BLM should develop measures designed to reduce NO_x emissions from all OCS activity such that the State 1-2 hour NO_x standard is not violated.
- [18] In addition, the Federal annual average NO_x standard is likely to be exceeded due to Sale No. 48 (pg. 1054). The maximum contribution of Sale No. 48 is 0.034 ppm and when added to the annual average background of 0.03 ppm, results in a violation of the Federal annual average standard of 0.05 ppm. The BLM should ensure that the mitigation measures developed to meet the State 1-hour NO_x standard are adequate to meet the Federal annual average NO_x standard.

- [19] The maximum 1-hour H_2S concentration predicted to occur downwind of the gas and oil processing facility in Ventura is 0.15 ppm, five times the State standard of 0.03 ppm, (pg. 1059). Mitigation measures to control H_2S emissions should be developed and provided in the FEIS.
- [20] SO_2 poses a problem under the 100% Tankering Scenario. The California State 1-hour SO_2 standard is 0.5 ppm and the maximum increase in 1-hour S) due to Sale No. 48 is 0.20 ppm in Region III. (pg. 1041) The state also has a sulfate 24-hour standard which may be violated onshore if a large percentage of SO_2 is converted to sulfates prior to reaching the coast. This concern should be addressed in the FEIS.
- [21] The DEIS (pg. 1087) states that "It is highly likely that Class I (PSD) standards are exceeded for SO_2 under the cases of offshore accidents with fire and for 100-percent tankering scenarios." Measures to control SO_2 emissions under the 100% Tankering Scenario should be developed to ensure compliance with the Class I PSD standard of 0.002 ppm.
- [22] Table III.D.3.e-1, pg. 1088. Should the SO_2 values be labeled in ppm rather than ug/m ?
- [23] Pg. 1066 the DEIS states that an exceedance of the annual average NO_x standard will not occur yet pg. 1054 indicates an annual average NO_x standard violation. This should be resolved in the FEIS.

[24] Photochemical modeling resulted in slightly greater NO_x impacts in the 100 percent tankering scenario whereas inert pollution modeling resulted in significantly greater NO_x impacts under the normal tankering case. This discrepancy should be discussed in the FEIS.

NPDES PERMIT COMMENTS

[25] EPA is particularly concerned with water quality impacts during the discharge of drilling mud and produced water. The key question is how quickly pollutant concentrations are diluted below toxic levels. For drilling muds the EIS should contain a table summarizing and comparing:

- (1) Toxic pollutant concentrations in typical and worst-case drilling mud formulations.
- (2) Toxicity of drilling fluid component to endemic marine organisms.

The above also applies to formation water. The EIS tabulates the required dilution needed to reduce pollutant concentrations in the wastewater below toxic levels but the question of when and where this degree of dilution occurs is unanswered. Dilution factors should be calculated for various platform configurations and compared with the dilution factors required to reach safe level.

Responses To:

U.S. Environmental Protection Agency

- [1] Although we share your concern for the unique and sensitive biological resources in the proposed Sale 48 area, we feel that the detailed geophysical surveys conducted on each and every tract before any drilling operations begin will assure that no development takes place which would involve an unacceptable risk to the environment. Also, it should be pointed out that the OCS Lands Act Amendments of 1978, Section 208 (Section 25(h)(1)(D) of the Act) gives the Secretary of the Interior the authority to disapprove any plan of exploration or development:

"(D) if the Secretary determines, because of exceptional geological conditions in the lease areas, exceptional resource values in the marine or coastal environment, or other exceptional circumstances, that (i) implementation of the plan would probably cause serious harm or damage to life (including fish and other aquatic life), to property, to any mineral deposits (in areas leased or not leased), to the national security or defense, or to the marine, coastal or human environments, (ii) the threat of harm or damage will not disappear or decrease to an acceptable extent within a reasonable period of time, and (iii) the advantages of disapproving the plan outweigh the advantages of development and production."

The 300 meter depth limit for development proposed by EPA is under the current technologically achievable depth limit. The Shell Cognac platform in the Gulf has been placed in 1200 feet of water successfully. It should also be pointed out that technology will not advance if deep water tracts are not offered for development. Deep water technology would stagnate if the 300 meter limit proposed by EPA were adopted.

Regarding water quality, EPA issues permits for the dumping of formation waters, drilling muds and drill cuttings. We have confidence that the EPA would not permit the dumping of these substances in areas of great environmental concern or in lethal amounts.

Regarding air quality, under the OCS Lands Act Amendments of 1978, Section 204 (Section 5 of the Act), the Secretary of the

Interior is required to prescribe rules and regulations , "(8) for compliance with the national ambient air quality standards, pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.), to the extent that activities authorized under this Act significantly affects the air quality of any State." The Department of the Interior is currently in the process of formulating proposed regulations for implementing the clean air requirements. A notice of intent to propose such regulations is scheduled to be published in December, 1978. The regulations being formulated by DOI will be effective and applicable prior to the initiation of any operations on any lease which might be issued as a result of proposed OCS Sale No. 48.

Section 21 of the OCS Lands Act as amended in 1978 requires a study of the adequacy of existing regulations and the use of best available technology, insofar as these things can be brought to bear on air pollution or deep water development procedures of OCS operators. As discussed in our specific responses below, the deep water technology, water quality, and air quality sections of the FES have been revised and expanded where appropriate.

[2]

The discussion and analysis of deep water technology have been greatly expanded in the Final ES and are identified in Section II.H.3. An alternative to delete deepwater tracts has been included as Alternative VIII.A.16.

After a lease sale, the exploration of deep water tracts could start within the year and development could begin within two or three years; however, the development usually takes 4 or 5 years. By regulations, development must begin within 5 years. The exploration and development plans must be submitted by the lessees to the U.S. Geological Survey for approval. These plans must comply with the Outer Continental Shelf Lands Act

Amendments of 1978. These plans will not be approved should they indicate unacceptable environmental risks such as slumping and seismic hazards which are identified in detail prior to start of the exploratory drilling.

To minimize the environmental risk during exploration and development of deep water tracts, the U.S. Geological Survey has issued twelve OCS Orders and four Notice to Lessees (NTL). The Geological Survey is also reviewing the final draft to "Requirements for Verifying the Structural Integrity of OCS Platforms." These OCS Orders authorize the Supervisor (U.S. Geological Survey) to approve design, installation and operation of offshore petroleum activities including subsea completion systems.

Notice to Lessee, NTL 7702, requires the lessee to conduct a shallow hazard survey prior to exploratory drilling. This

survey would uncover any potential hazards as sea-bottom slump, steep bottom slump, etc. U.S. Geological Survey's proposed OCS platform verification program would assure the integrity of deep water platforms by establishing requirements for design, construction, installation, and inspection.

[3] The proposed deletion of 34 tracts in the Santa Barbara Channel has been analyzed and is included in the FES as Alternative VIII.A.13.

[4] Section II.A.2.a has been expanded as suggested. It should be noted, however, that it is extremely difficult to predict the possible number of oil spills that could result from seismic activity if mud activity has not resulted in any oil spills in the past. As stated in the ES, over 500 wells have been sheared in the Wilmington Oil Field without a spill. If one were to use historical statistics, a good case could be made that no oil spills are expected as a result of seismic activity. It is for this reason that earthquake induced spills are not included in the oil spill model. There is simply no data known to us on which a statistical analysis, which the oil spill risk analysis is, can be based. The ES does point out that water pipes have been ruptured during earthquakes. And, therefore, one could assume that oil and gas lines could also be ruptured but they have not been in the past.

In regard to a tract-by-tract assessment of the seismic susceptibility of the sale area, each tract is fully analyzed for all geologic hazards before the sale and again before any drilling operations begin.

[5] We recognize the biological productivity of the Tanner-Cortes area and have provided Stipulation No. 8 for its protection. The impacts of the proposal on the Tanner-Cortes areas described under each and every biological impact section throughout the ES and again under Section III.C.1.j, Impact on Unique Biological Environments. As stated in response [4] above, before any development takes place a full geologic hazards survey is conducted for each and every tract.

[6] BLM believes that the stipulation is adequate, as written, to protect the banks. The distance of 5 miles is felt to be more stringent than necessary. Stipulation No. 6 from Sale No. 35 will be revised to read 1500 meters instead of 5 miles. This revision is based upon data obtained during the drilling muds and cuttings dispersion study at Tanner Bank conducted by Shell Oil Company in 1977 as well as discussions with numerous marine scientists.

- [7] Safeguards in the form of Stipulation 5 and 8 are adequate to protect communities having special value.
- [8] The San Francisco EPA Office is the one which now has the authority to issue or deny all discharge permits in this area. Since the responsibility rests with your office, it seems appropriate to us that your office should provide detailed guidelines of the modifications for our office to incorporate into the Sale 48 ES.
- [9] Your suggestion to delete certain tracts north of San Miguel Island from Lease Sale No. 48 has been considered. An additional alternative discusses the impacts of such a deletion and is included in Section VIII of the FES. An incorrect statement was made in the DES, p. 327, regarding the Guadalupe fur seal. It is not yet officially recognized as an endangered species but is proposed for such recognition. That statement has been corrected.
- [10] Ship transport is not under the jurisdiction of the Department of the Interior. Barges or tankers used would meet the requirements of the appropriate federal agency. The impact of barging operations from the Dana Point - San Diego area will not result in a significant impact on water quality due to the low level of oil production projected for that area. Barging is not an alternative for the Dana Point - San Diego area. It is part of the proposal. The alternative is an onshore pipeline from San Diego to Los Angeles.
- [11] EPA does not document the statement "It should be noted that the technology for beach and shoreline cleanup is now approximately the same as it was during the cleanup of the 1969 platform blowout. It is therefore, safe to assume that another major spill in the same area could have a very similar end result -- massive contamination." A great deal of research has been done on beach cleanup in recent years and this subject has been addressed at each of the major oil spill symposiums that have been conducted each year (i.e., "Beach Protection By A Degradable Sprayed Film", "Oil Contaminated Beach Cleanup", and "Microbiological and Natural Products Systems For The Protection of Coastal Shorelines From Oil Spills and Oil Contamination" published in the 1975 Conference on Prevention and Control of Oil Pollution held on March 25-27 in San Francisco and sponsored by EPA, API and the USCG). The amount, type and variety of equipment available in the Santa Barbara area has been substantially increased. Also, the methodology and means of various types of beach cleanup have received a great deal of study. It, therefore, seems much more reasonable to assume that if the same type of spill were to occur today, it would have substantially less impact. The

actual nature and consequences of a cleanup operation vary greatly from one location to another and depend on the amount and type of oil and the amount of weathering of the oil. It is impractical to attempt to hypothesize spills along the coast as it would require hundreds of pages for even a simple analysis. Prior to any drilling activity, a detailed oil spill contingency plan must be approved. These plans are detailed listings of type and location of equipment, training for personnel, methodology, etc. They are constantly upgraded and interested parties can usually obtain them for a small reproduction fee as shown in the ES.

- [12] Community dynamics studies are believed to be beyond the scope of the minimum biological survey concept of the stipulation. The survey was designed with the assumption that if coral is present an adverse impact is highly probable and the operation would be shifted or possibly abandoned. Studies may reveal this concern is unwarranted. Community dynamics studies are certainly advisable, but we feel these should come from another source and examine the community throughout the entire bank rather than on a specific tract.
- [13] As stated in response [1] above, the Department of the Interior is in the process of developing regulations on the air quality issue at this time.
- [14] The impact of population growth on air quality has been included in the FES. However, it is not possible to localize the population growth to particular cities since the exact location of offshore localities is not known at this time. Also, the population changes projected by the Curtis Harris Model include both direct and secondarily induced population changes not directly associated with the proposal. These population changes are therefore projected on a county-wide basis. More localized projections could not be made without exact locations for possible new industries and housing developments.
- [15] We are aware of a possible cutoff of federal funds if clean air standards are not met. This ES process has been coordinated from its inception with State and local government.
- [16] A discussion of secondary impacts has been added.
- [17-
18] The modeling technique assumed a single emission point for NO_x emissions from the processing plants. In reality, the emissions from these facilities would be spread out considerably more and the impacts would be less than this. The conservative assumption that all NO_x emissions are

converted to NO₂ also results in overprediction of the impacts. Thus, actual impacts should be considerably less than those shown.

Since these facilities are onshore, new source review will occur on any processing facility modifications. This would ensure that these facilities would be consistent with all air quality standards and attainment plans.

Mitigation measures address these NO₂ impacts in Chapter IV.

[19] Mitigation measures address these H₂S impacts in Chapter IV.

[20] A discussion of sulfate impacts has been added to Section III.D.2.

[21] A new section III.D.2.e discusses impacts on the potential Class I areas of the Channel Islands. Chapter IV, Mitigating Measures, addresses these impacts.

[22] Section has been revised.

[23] Section III.D.2 discusses the potential NO₂ exceedance.

[24] Section III.D.3 addresses photochemical pollutant impacts with the emphasis on oxidants. Potential NO₂ impacts are quantified and addressed in Section III.D.2. The discrepancy between the indicated NO₂ impacts in these two sections is the result of the differing assumptions used and purpose of the analyses. The NO₂ impacts identified in Section III.O.2 are presented as the conservative quantification of the NO₂ impacts.

[25] BLM shares EPA's concern about potential water quality impacts for drilling mud and formation water discharges. As a result, these impacts have been discussed in some detail in Section III.C.2, Impact on Water Quality, and also in the other impact sections relating to pelagic and benthic biological resources. The questions concerning dilution factors in the marine environment for discharged drilling muds and formation water and when and where in the ocean non-toxic dilutions occur are very complex and depend on several local conditions. These are mentioned in Section III.C.2 and include the type and characteristics of the mud or formation water, the discharge rate, water depth, surface and subsurface currents, mixing rates, and other physical oceanographic conditions.

Section III.C.2 also discusses the field studies that have been conducted in the marine environment to estimate dilution rates and measure concentrations of drilling mud and formation

waters discharged around offshore drilling rigs. In a 1977 study conducted by ECOMAR, Inc. for Shell Oil Company on Tanner Banks, the investigators observed dilution rates of 500:1 to 1000:1 within 1 to 3m of the drilling fluid discharge pipe from an exploratory drilling rig. Additional dilutions of 100:1 were measured within 100m of the discharge pipe. A summary of reported concentrations for drilling muds is given in the following table:

CONCENTRATIONS OF SUSPENDED SOLIDS AND SELECTED TRACE METALS IN WHOLE MUD AND IN THE WATER COLUMN (mg/l)

Whole mud concentrations demonstrate the calculated mean; suspended solids and trace metals concentrations represent the "worst-case."

Whole Drilling Mud		2-3m	100m	200m
		from Discharge	from Discharge	from Discharge
TSS	250,000	499	5.2	1.0
[Ba]	15,000	23	0.04	0.05
[Cr]	320	1	0.004	0.0004
[Pb]	26	0.05	0.0005	0.0004
Average rate of discharge: 1066l/hour.				

From: ECOMAR, Inc. 1978. Tanner Bank Mud and Cuttings Study. Conducted for Shell Oil Company January through March 1977. Goleta, California.

Other studies in the Gulf of Mexico have demonstrated dilution of discharged contaminants to background levels within 200 to 300m of the discharge source.

Tables III.A-9 through 12 in Sections III.A.1.a and b give components and characteristics of representative drilling muds and formation water for offshore Southern California. EPA toxic limits for formation water constituents after dilution in the ocean are listed in the California Ocean Plan. Current NPDES permits for drilling mud discharge into the ocean being given by EPA consider chromium as the most toxic component with an after dilution toxic limit of 0.002mg/l. The EPA Regional Office in San Francisco currently requires bioassays for drilling mud discharge permits.

Short-term toxicity data for drilling muds and formation water have been summarized in McAuliffe and Palmer (1976). California marine organisms used for past and current tests for these components have been limited to the California killifish and the threespine stickleback.

BLM has requested the results of NPDES bioassay data for drilling muds from EPA's San Francisco Regional Office to strengthen future ES impact discussions.

MARINE MAMMAL COMMISSION
1625 EYE STREET, N. W.
WASHINGTON, DC 20006

6 December 1978

Mr. Frank Gregg
Director
Bureau of Land Management
Department of the Interior
18th and C Street, N.W.
Room 5660
Washington, D. C. 20240

Re: DEIS, OCS Sale No. 48

Dear Mr. Gregg:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the Draft Environmental Impact Statement for the Proposed 1979 Outer Continental Shelf Oil and Gas Lease Sale Offshore Southern California (OCS Sale No. 48). Pursuant to our responsibilities under Section 202(a) of the Marine Mammal Protection Act of 1972, we make the following comments and recommendations relative to the DEIS and the proposed action.

GENERAL COMMENTS

The DEIS indicates (p. 259) that as many as 32 species of marine mammals could be impacted by the proposed action. However, it does not adequately identify the extent to which these species might be impacted. None of the proposed mitigating measures are designed specifically to insure the conservation of marine mammals and their habitats.

- [1] The failure to more precisely identify possible adverse impacts on marine mammals, or to develop mitigating measures specifically designed to conserve marine mammals and their habitats, appears to be attributable to: (1) a general lack of information on the structure and dynamics of the marine ecosystems in and adjacent to the proposed lease sale area; and (2) a specific lack of information on the possible effects of OCS-related activities (e.g., major oil spills, chronic discharges, noise from drilling rigs, etc.) on various species of marine mammals or the ecosystems of which they are a part.

To minimize the risk of adversely affecting marine mammals and the ecosystems of which they are a part, the proposed action should be postponed until there is a better basis for identifying possible adverse impacts and mitigating measures that might be used to avoid them.

SPECIFIC COMMENTS

The following comments, while not exhaustive, are intended to point out deficiencies and/or errors in the DEIS.

Pp. 29-53 -- "Inter-relationship with Other Jurisdictions, Programs and Plans"

- [2] The Secretaries of Interior and Commerce have mandated responsibilities, under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973, which are relevant to OCS oil and gas development. These responsibilities should be identified in subsections 1.a.iii. (U.S. Fish and Wildlife Service) and 1.f. (Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service) of this section.

Pp. 878-895 -- "Table III.C.1.d-4 - Areas of Special Sensitivity"

- [3] The information presented in this section, while useful, may be misleading. Data concerning the habitat use patterns of many different species apparently have been combined to identify what appears to be general areas of biological significance. This "lumping" of data could result in certain areas being viewed as "unimportant" when in fact they are of critical importance to one, but not all, species. Therefore, it would be more appropriate and useful to provide a series of figures showing areas of biological significance for each species, as well as the composite figure.
- [4] The use of the term "threat potential" to label the three "area" categories (p. 878) seems inappropriate. Since the section is intended to identify areas of special biological sensitivity or significance, it would seem more appropriate to use the term "biological sensitivity" or "biological significance" to label the area categories.
- [5] The last sentence in the paragraph under "Category B" states that: "The animals are relatively wide spread and mobile." The intent of this sentence is not self-evident and it should be deleted or the meaning clarified.

[6] The first sentence in the paragraph under "Category C" states that: "These are areas known for seasonal use either as foraging grounds or migration pathways." Criteria (2) under "Category A" refers to areas where there are "predictable seasonal concentrations of major proportions." It is not clear how the author or authors determined that some "seasonal use" areas are of extreme biological significance or sensitivity, while others are only moderately significant or sensitive.

[7] The last sentence in the paragraph under "Category C" states that: "The probability of catastrophic impact is not as great because these areas receive only seasonal use." While it is true that the probability of direct impact is not as great in areas that are used only seasonally, it does not necessarily follow that the probability of catastrophic impact also is reduced. An oil spill that significantly reduces the density of prey species, for example, could have a catastrophic impact on the predator whether or not the predator was present when the oil spill occurred.

Pp. 896-912 -- "Impacts on Marine Mammals"

[8] The last sentence in paragraph 2, p. 896 states that: "Unfortunately, there are no unequivocal data available demonstrating adverse effects of small amounts of oil in ecosystems." Since the purpose of the DEIS is to assess the possible impacts of the proposed actions, it would seem that the sentence more appropriately would be stated as follows: "Unfortunately, there are no unequivocal data to demonstrate that small amounts of oil will not adversely affect marine mammals or the ecosystems of which they are a part."

[9] Par. 3, p. 896 states that: "Essentially, three types of hazards to marine mammals may occur as a result of off-shore petroleum development..." While it is true that OCS-related hazards to marine mammals can be grouped according to the categories which are listed, the subsequent discussions do not fully consider all possible sources of impacts. Noise emanating from drilling rigs, ships or aircraft, for example, could cause certain species to avoid preferred feeding areas or migratory routes and these possibilities should be considered.

[10] The paragraph beginning at the bottom of page 896 and continuing at the top of page 898 notes that: "Nothing is known of the habits of seals and sea lions encountering floating oil at sea." It also should be noted that nothing is known about the "habits" of cetaceans and sea otters encountering floating oil at sea.

- [11] The paragraph beginning on the bottom of page 898, and continuing at the top of page 899 notes that "...reproductive activities may be completely disrupted by human intrusion or aircraft flyovers..." and that "...adult animals may stampede to the water at the sight of man, leaving pups behind." The paragraph also should note that there appear to be no alternative pupping/breeding habitats, that disruption of reproductive activities may result in population declines, and that stampedes may result in pups being crushed.
- [12] The last sentence in paragraph 3, page 899 would be more accurate if revised to read as follows: "Any action which would cause animals to avoid traditional migratory routes, or result in the loss of an important feeding area along such a route, might well be very detrimental to a population as a whole."
- [13] Par. 4, p. 899 notes that spilled oil, etc. may affect marine food chains but that long-term food chain experiments have yet to be conducted. It should be noted whether or not such studies are underway or planned.
- [14] Table III.C.1.e-2 (p. 900): This table does not appear to be complete. The memorandum concerning "Section 7" consultation with the National Marine Fisheries Service (pp. 1573 and 1574) indicates that the NMFS staff feels that the Pacific right whale could be adversely impacted by the proposed action. Therefore, the Pacific right whale should be included in the table. Likewise, the sea otter and, perhaps, several species of small cetaceans, in addition to the pilot whale, should be included in the table.
- [15] The proposed sale area once was a part of the sea otters' range. Although there presently are no sea otters in the proposed lease sale area, available evidence suggests that they very well may recolonize part of the area within the projected 40 year time span associated with the proposed action. Oil and gas development could slow or preclude recolonization and, for this reason, sea otters should be included in the table.
- [16] Several more or less discrete populations of common dolphins, bottlenose dolphins, Pacific white-sided dolphins, or other small cetaceans, may occur within the proposed lease sale area. These populations could be highly vulnerable to impacts from offshore oil and gas development. Therefore, available data on the distribution and abundance of small cetaceans should be evaluated to determine whether discrete populations of small cetaceans may occur in, or adjacent to, the proposed lease sale area. If the data suggest that there may be discrete populations in or adjacent to the proposed lease sale area, these species should be included in the table.

- [17] Par. 1, p. 902 notes that increased human activity, noise, and low-level pollution may also affect the whales using the San Pedro Bay area and that "Ecosystem contamination could significantly affect the food organisms of the pilot whales; therefore, affecting the whales themselves." It should be noted that increased human activity, ecosystem contamination, etc. could affect all marine mammals inhabiting the area.
- [18] Par. 3, p. 902 indicates that impacts from human activities and noise are expected to be minimal. However, information presented in the DEIS suggests that virtually nothing is known about the possible effects of noise on marine mammals. Therefore, there would seem to be no basis for concluding that impacts from noise are "expected to be minimal".
- [19] Par. 6, p. 902 states that: "Recent surveys conducted by the University of California have identified the entire Santa Rosa-Cortes Ridge as a major feeding area for marine mammals." Par. 1, p. 903 indicates that the Tanner-Cortes Banks area also has been identified as an important feeding area for marine mammals. This knowledge appears to have had little influence on site selection or development of mitigating measures. Before proceeding with the proposed action, available data should be reassessed to determine whether these areas should be afforded specially protected status.
- [20] Par. 4, p. 903 states that: "Due to the rather small numbers of breeding animals on these islands [Santa Catalina and San Clemente], and the restricted breeding areas, overall impacts on marine mammals are expected to be very limited." The conclusion that overall impacts are expected to be very limited may not be warranted. If the animals using the islands constitute a discrete breeding population, rather than a part of a larger breeding population, catastrophic impacts could be expected.
- [21] Par. 3, p. 904 indicates that chronic low-level pollution from tanker ballast discharges could impact marine mammal populations but that "the extent of such impacts are difficult to predict." The anticipated severity of impacts presumably could be predicted, with no difficulty, if the necessary data were available. Therefore, it would be more appropriate to state that "available data are inadequate to predict the extent of such impacts", not that "the extent of such impacts are difficult to predict."

- [22] The possible effects of an oil spill on sea otters are discussed on pages 904 and 905. This discussion should note that the California population of sea otters has been designated "threatened", primarily because of the threat of an oil spill (see F.R. 42: 10, pp. 2965-2968). It also should note that sea otters are benthic feeders and that an oil spill or chronic discharges could have a catastrophic effect if they impact the sea otter's food supply.
- [23] The section on Cumulative Impacts (p. 905) should identify proposed or on-going activities, not related to OCS oil and gas development, that may accentuate the threat to marine mammal populations or other ecosystem components. As an example, the DEIS should consider how the Space Shuttle Program at Vandenberg Air Force Base might accentuate the adverse effects of OCS-related activities, or vice versa, on pinniped populations found on or near San Miguel Island (re: pp. 48-49 of the DEIS).
- [24] Summary of Impacts (p. 905): While it undoubtedly is true that the Santa Barbara area, and especially the San Miguel Island area, are likely to be impacted by the proposed action, the available information appears to be inadequate to conclude that the Santa Barbara area is "the one area" [emphasis added] most likely to be significantly impacted. As noted earlier, the Santa Rosa-Cortes Ridge and the Tanner-Cortes area are important feeding areas for marine mammals and it very well may be that oil spills or chronic discharges in these areas may have an impact of equal or greater significance than an oil spill, etc. in the Santa Barbara area.
- [25] Pp. 906-912 -- "f. Threatened/Endangered Species"
- Par. 3, p. 906 refers to "the most probable long-term level of impacts on the world population of each species." Most, if not all, of the species listed in Table III.C.1.f-1^a are known to be comprised of more than one discrete breeding population or stock and it is misleading to assess possible impacts in terms of a species as a whole. Both the Marine Mammal Protection Act and the Endangered Species Act refer to populations, as well as species, and the potential impacts on populations, as well as species, must be considered.
- [26] Information presented in the DEIS suggests that virtually nothing is known about how cetaceans, seals and sea otters might respond to an oil spill or to noise generated from drilling rigs, ships or aircraft. In the absence of information

concerning possible effects, it would seem that the table should list probable impacts as "unknown", rather than "minor", "moderate", etc. In this same context, there seems to be little basis for the apparent conclusion (re: par. 2, p. 906) that 5% or less of a population injured, destroyed, or displaced would constitute a "minor" impact. These species are not equally "endangered" and the severity of potential impacts should be judged in terms of recovery times, rather than numbers (e.g.: 0 to 5 year recovery time = minor impact; 5 to 10 year recovery time = moderate impact; greater than 10 year recovery time = severe impact).

[27] Par. 6, p. 906 states that: "It must be pointed out that oil impacts on whales are theoretical. Data does (sic) not exist to prove the impacts." These statements suggest that the author feels that, in the absence of knowledge, one should assume that the proposed action will have no adverse impacts. Common sense dictates otherwise and these two statements should be deleted or revised to indicate that, although there are no direct experimental or observational data, inferential evidence suggests that oil very likely will have a significant adverse impact on whales.

[28] Par. 2, p. 910 indicates that oil and gas development could force gray whales to migrate further offshore and then concludes that "...since the gray whales are known to be able to migrate without the benefit of keeping land in sight... this [forcing the animals further offshore] should cause no major impact..." The fact that gray whales are known to be able to migrate without the benefit of keeping land in sight has little or no bearing upon the possible consequences of forcing the migration further offshore. "Choice" of migratory routes presumably has some adaptive significance (e.g., to minimize energy expenditure) and causing animals to move further offshore very well could have a significant impact on the population.

[29] Par. 4, p. 910: For the reasons noted above, it is misleading to assess possible impacts in terms of a "species-as-a-whole". This paragraph should be deleted or revised to reflect possible impacts on what are known to be, or thought to be, independent breeding populations.

[30] Par 1, p. 911: This discussion notes that Guadalupe fur seals once were numerous in southern California and then concludes that "even if the dozen or so California individuals were killed it would not have more than a minor impact on the entire population." This conclusion fails to recognize that the "dozen or so California individuals" could be the precursor of a founder population and that loss of these

individuals could slow the recolonization process. The conclusion also fails to consider that failure to repopulate part, if not all, of the former range will make the existing population more vulnerable when, and if, oil and gas development begins in the OCS areas off Baja California.

- [31] Par. 3, p. 911 states that "...the chances of oil reaching the area containing nearly all of California's sea otters (within 60 days) is low, <0.5 to 3 percent; therefore, the probable impacts are minor." While it is true that the probability of impact is minor, it does not necessarily follow that probable impacts will be minor. The last part of this sentence should be changed to read: "however, if oil reaches these areas, the probable impacts would be severe."

- [32] Pp. 1257-1258 -- "NTL 77-4"

Although it is not entirely clear, this section appears to say that the survey document is to be prepared and signed by a professionally qualified marine biologist and is to emphasize the benthic environment but include descriptions of the species composition and population densities of benthic and pelagic microorganisms, fish, sea birds and marine mammals. The reason for the emphasis on the benthic environment is not self-evident. From the ecosystem perspective, it would seem that impacts on pelagic organisms would be of equal, if not, greater concern.

- [33] The National Marine Fisheries Service and the Fish and Wildlife Service are responsible, under the Marine Mammal Protection Act and the Endangered Species Act, for the conservation and protection of marine mammals and endangered species. Therefore, these two agencies should be consulted to assist in assessing the survey report and in developing stipulations and operating orders in response thereto.

Pp. F-1 -- F-36 -- "APPENDIX F"

- [34] Use of averages to indicate the anticipated degree of impact is inappropriate and misleading. Consequently, the information presented in this section does not accurately portray the degree of impact that can be anticipated as a consequence of the proposed action. It would be possible, for example, to anticipate total elimination of an endangered species or some other resource, while stating that the mean anticipated degree of impact is low (re: the last sentence in par. 2, p. F-1).

- [35] Available data clearly are inadequate to reliably predict possible impacts on marine mammals and to infer otherwise, as this Appendix does, is misleading. The Appendix should be revised following consultation with the National Marine Fisheries Service, the Fish and Wildlife Service, and scientists having first-hand knowledge concerning the biology and ecology of marine mammals in the Southern California Bight.

CONCLUSIONS

The DEIS clearly indicates that the proposed action could have a significant adverse impact on marine mammals and the ecosystems of which they are a part. However, available information is inadequate to accurately predict the precise nature and magnitude of possible impacts. Likewise, available data are inadequate to determine what mitigating measures could and should be used to minimize the risk of impacting marine mammals or the ecosystems of which they are a part.

- [36] The DEIS states (p. 4) that: "The most probable estimated peak production of oil for the total sale area is 219,700 barrels per day..." It also indicates (p. 620) that more than 1,200,000 bbl/day of crude oil will be transported from Valdez, Alaska to Long Beach, California in the 1980's and that "these imports will create a west coast surplus of 300,000 to 600,000 bbl/d." This appears to suggest that the proposed action can and should be delayed until the protection of living resources, including, but not limited to marine mammals, can be assured.

RECOMMENDATIONS

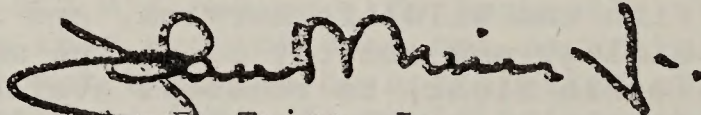
- [37] For the reasons noted above, the Marine Mammal Commission, pursuant to its responsibilities under Section 202(a) of the Marine Mammal Protection Act of 1972, recommends that the Bureau of Land Management postpone the proposed action until: (1) there is a better basis for assessing possible adverse environmental impacts; and (2) there is reason to believe that mitigating measures and monitoring programs will be adequate to insure that activities associated with oil and gas development in the California Bight will not be to the disadvantage of marine mammals that occur there.

- [38] Before preparing and issuing the Final Environmental Impact Statement (FEIS), we further recommend that the Bureau consult with the National Marine Fisheries Service, the Fish and Wildlife Service, and scientists familiar with the biology and ecology of marine mammals in the Southern California Bight, to reassess available information regarding the possible impacts of the proposed action on marine mammals and the ecosystems of which they are a part. The results of this reassessment and consultation should be reported in the FEIS and, among other things, should include:

1. a summary of available information concerning the habitat requirements (including feeding areas and food preferences) of each marine mammal species and population that occurs in the Southern California Bight;
2. determinations as to: (a) how various OCS-related activities may be expected to affect the prey species upon which each marine mammal species or population are dependent; and (b) the presence and suitability of alternative feeding areas and prey species;
3. a description and determination as to the adequacy of research that is underway or planned to determine and monitor how activities associated with oil and gas development (e.g., oil spills, platform construction and drilling, increased ship, aircraft and boat traffic, etc.) may affect various populations, species or classes of marine mammals (e.g., cetaceans, hair seals, fur seals, sea otters) that occur in the Southern California Bight; and
4. a description of the specific steps that have been taken, or will be taken, to insure that oil and gas development in the Southern California Bight will not be to the disadvantage of the marine mammals which occur there.

We look forward to receiving the FEIS. If members of your staff have any questions concerning our comments or recommendations, I would be grateful if you would have them get in touch with Dr. Robert J. Hofman, the Commission's Scientific Program Director (202/653-6237).

Sincerely,



John R. Twiss, Jr.
Executive Director

cc: Mr. William E. Grant
Mr. Lynn A. Greenwalt
Mr. Dan Henry
Mr. Terry L. Leitzell

Response To:

Marine Mammal Commission

- [1] It is true there is as lack of information on some aspects of the Southern California Bight and on the impact potential of OCS oil and gas development activities. The BLM has many environmental studies in the OCS areas already and many more are planned for the future. Should the results of the studies show that OCS oil and gas development activities cause harmful effects to the environment, the Secretary of the Interior may choose to cancel leases or postpone sales of lease areas. As required by NEPA, BLM used the best available information in preparing the Environmental Statement.
- [2] Statements have been added as suggested.
- [3] A caveat is included on page 878 of the DES as an attempt to prevent readers from making misleading assumptions. Including figures mapping areas of biological significance for every species would add greatly to the volume of the report without adding much clarification.
- [4] Statements changed as suggested.
- [5] Statement has been clarified.
- [6] The dividing line between seasonal use (Category C) and seasonal concentration of major proportions was chosen by the University of California at Santa Cruz.
- [7] Such an impact was considered but because of the unlikeliness of such an event happening it was not expounded upon in the ES. An oil spill of non-refined oil would probably not significantly reduce the density of the prey species of marine mammals.
- [8] Statement has been changed.
- [9] An elaboration on possible noise impacts to marine mammals is found in Section III.C.1.e.i.
- [10-13] Statements have been changed as suggested.
- [14] The Pacific right whale has been added. The sea otter was not included because its range does not extend into the Bight. Small cetaceans were not included because they are not considered endangered species and they do not concentrate in certain areas, and are therefore not as vulnerable as species that do concentrate.

- [15] Possible impacts of OCS oil development to sea otters are discussed in Section III.C.1.e.iii. They were not included in the table because they are not found in the Bight.
- [16] Available data does not show that these "discrete populations" exist.
- [17] Statement has been changed as suggested.
- [18] The basis for this conclusion is that currently occurring disturbances (e.g., shipping, existing OCS development activities, commercial fishing), all of which alter the ambient noise level, have apparently not adversely effected marine mammal population. In fact, there have been increases in many marine mammal populations.
- [19] See Stipulations 5 and 8 in the ES.
- [20] These populations are probably not isolated from the rest of the populations in the Bight.
- [21-22] Statement has been changed as suggested.
- [23] The possible effects of the proposed Space Shuttle program upon marine mammals are unknown. Studies are being concluded to determine the extent of noise impacts.
- [24] Statements have been added as suggested.
- [25] Southern California Bight's population and the world population of endangered species are considered in Section III.C.1.f. This office does not feel that this comparison is misleading.
- [26] Definitions of the terms used in the table have been included on every page of the table. Not enough information is available to precisely predict recovery rates of endangered marine mammal species found in the Bight. Your comment on changing all table designations to "Unknown" has been noted.
- [27] The paragraph in question continues on to say that researchers believe whales are potentially very vulnerable to oil in marine environment.
- [28-29] It is true that if an alteration in migrating routes were to occur, there would be an increase in energy expended. However, such an additional expenditure is slight compared with the total energy used during the entire migration. This information and the fact that many grey whales already migrate outside of the channel are sufficient reasons to believe that activities causing the whale to migrate further offshore should cause no major impacts.

- [30] The Guadalupe fur seals in the Bight are a transient population and do not breed in the area. That is why the impacts would be minor to the species.
- [31] Statement has been changed as suggested.
- [32] The reason for emphasis being placed on the benthos is that the majority of the direct impacts would occur to the benthic environment. However, as stated, other elements of the environment will be surveyed as well.
- [33] The U.S. Fish and Wildlife Service participates with BLM in the development of all of the Stipulations and the Notice to Lessees and Operators. The National Marine Fisheries Services has been consulted on numerous matters. BLM will continue its cooperation and coordination with FWS and NMFS.
- [34-35] Appendix F shares the anticipated impacts, to the resource, of structural developments by tract only, i.e., the emplacement of pipelines or platforms. It does not include the impacts from oil spills or drilling operations which are analyzed in detail in Chapter III.
- [36] It should be pointed out that the west coast oil surplus is being shipped through the Panama Canal and that it is anticipated that the SOHIO pipeline from Long Beach, California to Midland, Texas will move any remaining surplus to the midwest by the time Sale No. 48 oil comes on line in the mid-1980's. The U.S. currently imports more than 7,000,000 barrels of oil per day. The need for the proposed action is clearly established by that fact. A delay of the project is addressed in Section VIII.B.
- [37-38] Environmental studies are continuing in the California OCS and monitoring programs will be included as outlined in Section 20 of the OCS Lands Act as amended.

The BLM has consulted with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service as shown in Section IX.C. Also, as part of Secretarial Order 2974 BLM and the U.S. Fish and Wildlife Service Coordinate, all environmental studies activities as well as lease stipulations, Notices to Lessees and Operators and development plans. After these consultations were completed these agencies do not recommend a postponement of the proposed action.

ANALYSIS OF DRAFT ENVIRONMENTAL STATEMENT FOR OCS LEASE SALE NO.48

OCTOBER 1978

Prepared for the California Coastal Commission,
631 Howard Street, 4th Floor,
San Francisco, CA. 94105

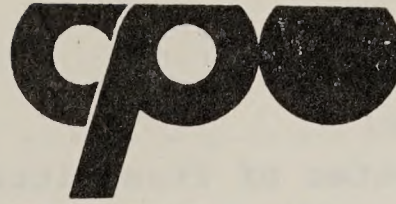
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Atmospheric Administration.

MBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Escondido, Imperial Beach, La Mesa, National City, Oceanside, San Diego,
Marcos, Vista, and County of San Diego / EX-OFFICIO MEMBER: California Department of Transportation / HONORARY MEMBER: Tijuana, B. C.F.A.
1950

SAN DIEGO REGION'S COUNCIL OF GOVERNMENTS



COMPREHENSIVE
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TO: Interested Citizens and Public Officials of the San Diego Region

RE: Analysis of Draft Environmental Statement (DES) for OCS Lease Sale No. 48

In June of 1976, the Department of the Interior began the federal administrative processes for Lease Sale No. 48 off the coast of Southern California allowing for oil and gas exploration and development. The lease sale will be held in June of 1979.

The Draft Environmental Statement (DES) for Lease Sale No. 48 was released by the Department of Interior in early September. CPO, with funding from the California Coastal Commission, contracted with consultants for the technical review of the DES as to its adequacies and impact on the San Diego Region. This document is the consultants' report analyzing the DES. The County of San Diego through the Air Pollution Control District also contracted with a consultant to review the air quality data, assumptions and conclusions. The air quality analysis is not included within this report.

Public hearings by the Department of Interior are scheduled for October 31 and November 1, 1978, in the Copper Room of the Convention and Performing Arts Center, 202 "C" Street, San Diego. We hope this information is helpful and useful to you in your evaluation of Lease Sale No. 48. CPO Board of Directors feel that development which could result from this lease sale has important impacts for the San Diego Region and that the widest possible involvement of the public is important for maintaining the region's quality of life.

Sincerely,

PAUL GRAHAM
Chairman, Board of Directors

TABLE OF CONTENTS

	<u>Page</u>
Letter of Transmittal.	
Table of Contents.	i
I. Introduction and Summary	1
A. Summary of Information Presented by BLM	1
B. Summary of This Report's Findings	2
1. Overview	2
2. General Comments	3
3. Specific Comments	4
II. Detailed Analysis	7
A. Resource Estimates	7
B. Physical Oceanography and Spill Risks	10
C. Marine Biological Environment	13
1. Introduction	13
2. General Comments	14
3. Critique of BLM Objectives	16
4. Specific Comments	17
a. Phytoplankton	17
b. Zooplankton	19
c. Benthic Organisms	20
d. Rocky Intertidal.	21
e. Nekton.	22
5. Unavoidable Adverse Effects.	23
6. Other Comments	24
7. Ecological Interactions: A Scenario	25
D. Socio-Economic Impacts.	27
1. Amenity and the Regional Economy	27
2. Economic and Fiscal Impacts.	28
3. Modeling Lease Sale Impacts	29
4. Ocean-Oriented Industries (R & D).	30
5. Commercial Fisheries	31
6. Tourism and Recreation	31
7. Military Operations.	32
8. Refinery in San Diego.	33
9. Economic Impact of Deleting Dana Pt./San Diego Segment	33
E. Alternate Energy Sources.	35

<u>Figure</u>		<u>Page</u>
1	Southern California Eddy	19a

<u>Table</u>		
1	Transient Occupancy Tax Collections 1972-1977	28a
	Persons Participating in the Analysis	36
	Persons and Organizations Contacted	37
	References	38

<u>Appendices</u>		
I	USGS Open-file Report 76-787	I-1
II	Oil Spill Risk Analysis	II-1
III	Specific DES Comments	III-1
IV	Biological Technical Reports	
	A. Prioritization of Dana Point- San Diego	IVA-1
	B. Screen Sampling Size Effects	IVB-1
	C. Marine Bacteria: Worst Case Scenario	IVC-1
V	Effects of Formation Waters and Drilling Muds	V-1
VI	Introduction to the Symposium on Recovery Potential of Oiled Marine Northern Environments (from J. Fish. Res. Board Can. 35 (No.5) May 1978	VI-1

I. INTRODUCTION AND SUMMARY

This report has been prepared under contract to the Comprehensive Planning Organization. The research team consists of a number of specialists in the fields of marine biology, oceanography, geology, economics and land use planning. The names and associations of each person working on this report are listed on page 36.

This report is organized to follow the topical organization of the DES: Summary of the Proposal; the Marine or Natural Environment; and the Man-Made Environment. References to specific page numbers of the DES are used wherever appropriate. The Appendices (submitted after the Main Report) contain backup information to the analysis contained in this paper.

A. SUMMARY OF INFORMATION PRESENTED BY BLM FOR OCS LEASE SALE NO. 48 - DANA POINT- SAN DIEGO TRACTS

1. Resource Estimate:
 - Oil...30 million bbls 4.2% of LS 48
 - Gas...45 billion ft³ 5.2% of LS 48
2. Net Recoverable:
 - Oil...27.5 million bbls (91%)
 - Gas...41.7 billion ft³ (92%)
3. Risk of Oil Spill (p. 1277 DES):
 - 1% in Dana Point-San Diego Tracts;
 - 19 major spills predicted for LS 48
4. Value of Resource:
 - Oil @ \$11/bbl...\$275,000,000
 - Gas @ .0014/ft³... 63,900,000
5. Recovery Cost (Investment):
 - \$154,500,000 (POCS Vol. IV, p. 20)
6. Impacts from OCS Operations:
 - a. New people: 3,089
 - b. New jobs: 309 in 1986 (peak year)
 - c. New income: \$3.8 million (peak year)
 - d. Local government position (cumulative 1980-2000): \$15 million deficit
 - e. Land required: 1545 acres
 - f. Solid waste: 136 tons in 1986

7. Impacts from Oil Spill:

- a. On Marine Environment - Substantial and widespread adverse impacts on the marine organisms, including estuaries
- b. On Man-Made Environment - Minimal impact on tourism, sports fishing, oceanographic research, and military operations, which together comprise 25% of San Diego's Gross Regional Product.

B. SUMMARY OF THIS REPORT'S FINDINGS

[1]

1. Overview

Very little is known about three critical elements of the Proposed Lease Sale: resources, behavior of ocean currents, and the existing marine environment. From reading the Draft Environmental Statement for Lease Sale No. 48, one would get the impression that the information presented is complete and accurate; that is, adequate for the purposes of making a decision about whether or not to sell the leases. The opposite is true: the major weakness of the DES is that although the inadequacy or poverty of data is acknowledged in many areas, the overall report is passed off as being adequate. It is a good review of existing literature on the marine biological environment.

[2]

The DES, however, cannot be considered a conclusive document indicating the known environmental impacts of the sale, since, to repeat, (1) it is not known how much oil and gas is in the San Diego-Dana Point tracts; (2) it is not known how an oil spill would be dispersed, since a great many unknown and unpredictable features of the ocean currents are not accounted for; and (3) there is little understood, except in broad generalizations, about the marine environment in the deeper waters of the Southern California Bight.

[3]

It is clear to the researchers that a great deal more study is necessary to provide information which will conclusively tell the Department of Interior what impacts will result from the OCS operations associated with Lease

Sale No. 48. This conclusion is supported by a 1977 Report from the California Office of Planning and Research entitled: Offshore Oil and Gas: Southern California, which states on page 13, Volume 1:

"Finally, we recommend that tracts along the San Diego coastline should not be offered until further baseline studies have been completed, including an assessment of the potential for this area to economically produce petroleum resources."

2. General Comments

- [4] a. The San Diego area is glossed over in favor of more detailed information for Los Angeles County and Santa Barbara. The level of study should be the same for all areas affected by the Lease Sale.
- [5] b. The report is replete with "editorials" sponsoring OCS exploration (e.g.: pp. 1317, 1377, 1401). This is not a legitimate purpose of an environmental statement, and such statements should be deleted, including references to the positive values of the oil platforms as navigational aids. At \$30 million apiece, it is quite probable that less costly aids to navigation can be constructed, if they are needed at all.
- [6] c. What may seem to be a mundane observation, but which is important to the relevance of the document, is that it should be in a loose-leaf format. The considerable time, effort, and funds which have been expended on the DES are in many instances negated by the fact that the information presented is now out-of-date (some of it now three to five years old). A loose-leaf format would facilitate convenient updating as more current information is published.
- [7] d. A Summary Report of the 3,000 page DES should be printed. This has been requested several times during this process.

3. Specific Comments

a. Resource Estimates

- [8] o Estimates are based on incomplete data.
- [9] o Some data, on which estimates are based, have not been made available.

b. Physical Oceanography

- [10] o The DES implies that average conditions of current flow are likely to exist at the time of an oil spill.
- [11] o The report does not stress that storm and fog conditions are characteristic hazard conditions likely to initiate a spill.
- [12] o Short term currents may exist at any time that can be ten times the average velocity, and in an entirely random, non-average direction.
- [13] o Wind stress on a spill and surface effects may drive oil in a different direction than the deeper bulk flow of the ocean currents discussed in the report.
- [14] o Mathematical models of the type utilized by BLM for oil spill trajectory are highly sensitive to the precision of the information in the first few miles of flow. No indication is given of the reliability or stability of statistics for these first cells.
- [15] o Deep water flows are ignored.
- [16] o No predictions are made of the disposition of formation waters discharged to the ocean, which may remain in stratified layers possibly presenting a hazard to midwater or bottom species.
- [17] o Drilling muds are assumed to disperse on the surface; they are likely to sink to the bottom and accumulate in the closed, deepwater basins.

c. Marine Biological Environment

- [18] o The Report is premature, incomplete and doesn't include 2nd and 3rd year commissioned research. Very little information in the DES (or scientific literature) is capable of predicting oil impacts on the marine ecosystem.
- [19] o BLM DES objectives of baseline/benchmark studies and negative impacts are unrealistic and immediately unobtainable. DES objectives have been subject to extensive criticism by the National Academy of Sciences (1978).
- [20] o Many aspects of experimental design, sampling techniques and statistical analysis (upon which conclusions drawn) are inadequate and open to criticism.
- [21] o DES fails to deal with long term chronic effects of hydrocarbon and heavy metals associated with oil development on the marine ecosystem and man.
- [22] o DES fails to integrate ecosystem impacts from formation water, drilling muds and heavy metals throughout the food chain.
- [23] o DES assumptions that Southern California current system will remove pollutant inputs are open to criticism. Southern California Eddy appears to recirculate water in the Southern California Bight for four to six months.

d. Socio-Economic Impact

- [24] o San Diego's natural amenities and economy interdependence are understated.
- [25] o Fiscal Impacts do not take Proposition 13 impacts into account.
- [26] o Harris Model inappropriate for fine grained analysis. Other models are available and were used in other counties affected by Lease Sale 48.
- [27] o There is no discussion of the importance of the ocean industries (R+D) activities in San Diego.

- [28] o Information on commercial fisheries needs updating.
- [29] o Impacts on tourism/recreation are understated, primarily because of low value per tourist-day (\$4.00) utilized.
- [30] o The importance of the military -- and its continued unfettered operations -- is not adequately addressed. For example, military employment figures are not included in the region's total work force.
- [31] o Due to its small resource base, the deletion of the OCS tracts of San Diego would have little impact on the regional economy.
- [32] o It is unlikely that an on-shore refinery will be built in the San Diego region.

e. Alternative Energy Sources

- [33] The section on alternative energy sources understates the potential for conservation and solar energy.

II. DETAILED ANALYSIS

A. RESOURCE ESTIMATES

[34]

1. Geological history and structural details of the Bight are extremely complex -- far more than the Eastern Seaboard or Gulf Coast. Trough formation, sedimentary filling, deformation, and oil generation are all taking place contemporaneously. The analysis and interpretation of the geology are simply assumed by the report to be correct, and not subject to review. From the information given in the report (14 pp. of textbook-quality generalizations), we would not even know that information is available. Yet independent study of the literature reveals that massive, multi-million dollar public efforts have been invested in studying the geology of the Bight (thousands of miles of shipboard surveys, thousands of samples, many thousands of man-hours of analysis). Some of the results of this work are available in published open-file reports of the USGS. One that is alluded to but not specifically referenced in the DES is Open-File report 76-787. This is far more informative than anything in the DES, and we include it as Appendix I to our comments to assure that at least this level of information is included in the public record.

[35]

2. From the viewpoint of the public and policy-makers here in the San Diego Region, in the State, and in the Congress, it would be valuable to have some indication of how important the USGS feels this area is in the larger picture of oil development in the OCS. Gross estimates of the (high and low range) resource potential for the 26 tracts are not very useful. From the Open-File Report indication of only 2000 feet of Miocene sediments here, compared, for example, to over 11,000 feet off Newport Bay, it is not apparent why these areas were even nominated.

[36] It is apparent that the USGS has extensive information regarding resource potential which has not been released, or has been released and is not referenced in the DES. Exclusion of this information is based on the presumption by the government that the geological data and quantitative details about the resource are only of concern to the government and the oil companies. We challenge this assumption, which is particularly unwarranted in a marginal area such as San Diego, where the environmental, technical, and economic grounds for drilling are open to question. Since the decision to offer these tracts for lease has obviously important environmental implications for San Diego, and since the decision is based on geological data and internal resource estimates prepared by the USGS, we maintain that the DES is incomplete and inadequate without inclusion of this information.

[37] With the inadequate information given in the report we are unable to judge, for example, whether hints in the DES of need for "distribution of tracts" in the sale could suggest these particular areas may be below the "priority 2" cutoff, and may be included in order to pioneer the San Diego area for future extension of additional leases. If that is the case, we would like to know the resource potential estimates of areas that were not included in the sale, and the reasons for their exclusion. At the very least, we would like to have access to raw data or generalized data from USGS files so that our own geologists could make rough estimates of the potentials.

[38] On the basis of the gross USGS figures of estimated resource, the Dana Point-San Diego tracts contain a very small (5%) portion of Lease Sale 48's estimated resources, and an insignificant quantity vis-a-vis national energy needs -- and in view of the many reservations about this report and about the negative impacts of development, the reasons given are inadequate for inclusion of this set of tracts in Lease Sale No. 48.

[39] 3. We are not aware of any available reports and none is cited in the DES text on geologic hazards of drilling on this coast. However, we note that USGS geological environmental studies have been conducted here (Open-file Report 76-787, page 31, reprinted as Appendix I of this report). Specific hazards identified should be accounted for in the control of any leases in the San Diego offshore tracts.

B. PHYSICAL OCEANOGRAPHY AND SPILL RISKS

- [40] Regarding the structure and movement of water masses overlying the Continental Borderland, the DES is too highly selective in choice of subject matter to be treated. It really considers only the analysis of risk due to surface spills, whereas movement of deeper waters may also be of environmental significance. And the approach to surface spills is highly specialized, stressing strongly the Department of the Interior's particular approach to mathematical modeling of spill trajectories. From a reading of the DES and the supporting Reference Paper No. 6, an individual without specialized technical training might infer that the described method is the only appropriate means of predicting oil spill behavior. Empirical methods of mapping currents with drift cards and drift bottles have been used in the past. They are unreported in the DES. Some of these results are illustrated in Appendix II to this report. They tend to suggest that all spills will move toward the shore. These results are biased in favor of shore landings, but they also are likely to show wind effects on the surface more reliably than the mathematical modeling approach. Drift bottle statistics should show at least a rough correlation with statistics generated by the numerical model. Additional checks should be sought in weather buoy data, winds and altitude, seagoing vessel weather data and the tracks of previous spills in these waters.
- [41] Two prior attempts at oil spill trajectory modeling are discussed in the State OPR report. These differ substantially in predicted tracks, mainly because of different importance assigned to wind stress. These results are not discussed in the DES.
- [42] As noted in Appendix II, the Lagrangian modeling method utilized by the government is highly sensitive to errors in assumed viscous stress by the wind, and to errors in assumed statistical distribution of currents and winds at the beginning of each track. No account is given of "unexpected" conditions, although unusual conditions such as major storms are more likely to initiate a spill than average conditions. A maritime hazard particularly characteristic of the offshore waters here is fog. This should be addressed in the section on the probability of an event occurring, and also in a needed section on probable sea conditions at the time of a spill.

- [43] A major shortcoming of the government model that our study has noted is the assumption that current fields may be inferred from an indirect measurement of density surfaces within the water column. This overlooks the possibility that the entire column may be in motion (non-zero bottom currents are noted in Reference paper II). It also neglects differences of movement between the main body of water and the uppermost surface layer, which may be highly significant.
- [44] Treatment of currents and their overall change with time is fairly comprehensive in the DES, but the report doesn't address the variability of current structure at any one time. A "snapshot" of the system may bear little relationship to the overall mean structure. Thus, under actual conditions a spill might move in any direction, and possibly far faster than predicted. The persistence of such variability is unknown. Few long time series measurements with current meters have been made.
- [45] Analysis of variance of wind fields is also neglected; the methods used consider only mean fields. Estimates of the wind field at sea should be based on ship observations as well as land observations.
- [46] On a positive note, it appears that some estimates of the probable impact of an oil spill on San Diego County are exaggerated by the mathematical model. Table 3A of Reference Paper No. VI shows extremely high probabilities (including several over 99.5%) of spills in San Pedro Bay and even Santa Barbara Channel reaching San Diego County shores within three days. This is obviously much too high, especially in view of the uncertainties of the model discussed above.
- [47] Comments in the DES on maximum bottom flows of 15 or 20 cm per second may fail to account for episodic events of much higher flow. "Burst-sweep flows" of up to 75 cm per second have been observed elsewhere in excess of low average bottom flow; they are considered a primary mechanism by which sea floor topography can be shaped.
- [48] Discussion of discharged formation waters and drilling muds is inadequate. The assumption appears to be made that these materials will disperse rapidly in the marine environment and pose no problems. This should be confirmed by more detailed analysis. Discharged drilling muds are likely to form dense, turbid

clouds in the process of mixing with sea water. If such mixtures reach the bottom and flow downslope on the Eastern Seaboard or the Gulf Coast, they may eventually disperse. But in the California Borderland the general topography leads downslope to deep, enclosed basins. Such materials may accumulate in this case in a very different way. The same reasoning could possibly apply to relatively dense formation waters, especially if discharged from the sea floor. This subject is not addressed in the impact statement portion of the report, and should at least be explored in a general way. Along similar lines, formation waters in the density range of sea water might form stratified density layers in the water column. This point should be noted, even if the potential impact is found to be slight.

[49]

As a final point of physical oceanographic characteristics and oil spill risk in the San Diego offshore area, we call attention to Figure II.C-11 of POCS Reference Paper No. II. This figure shows that San Diego is far more susceptible to hazards due to wave and swell than other shore areas of the Southern California Bight, which are shielded by the offshore islands. Accompanying text states: "The San Diego coast is the most exposed, and more or less unmodified waves may strike the shore from 190° to 280°." By comparison, for example, BLM states, "The best protected coastal area is from Point Conception to Ventura." This difference is not noted or considered in the oil spill risk analysis. Exposure to large swells from outside the area should also be of significance in the cost of oil development here since the tracts offshore are in very deep water for conventional drilling technology.

C. MARINE BIOLOGICAL ENVIRONMENT

1. Introduction

[50] An accurate assessment of environmental impacts for both the Southern California Bight (SCB) and the San Diego Region is an enormous and ambitious project. The inherent complexity of these regions, coupled with our general lack of knowledge about many aspects of the physical and biological marine environment, make any prediction tentative. Though this section will technically critique many aspects of the DES, credit must be initially given to the BLM report for providing useful information about the marine environment of the SCB.

[51] Though our task is primarily an analysis of the Dana Point-San Diego region, one must not lose sight that it is part of a larger region (the SCB) where many intricate factors interact. The effects of oil and gas development will have impacts. The question is whether they will be finite and short term, or more chronic and long lasting (or various combinations of both). The purpose that the DES should fulfill is an accurate assessment of these factors.

[52] One crucial concept is the ecological inter-relationships of the biological, physical and geological factors. An impact on one sphere may often affect another. This means that extended observations and experiments, both in the natural environment and the laboratory, must be made. These can take weeks, months and years.

[53] The marine ecosystem also has many complex interactions based on a food pyramid. The driving force is the sun (and mineral nutrients) which provides the energy that marine plants (the phytoplankton) need for growth and multiplication. The phytoplankton become the food for grazing animals (the zooplankton, including larval fishes), which in turn are fed on by larger predators, such as squid and fish stocks. These can then become the meals of marine mammals (seals, dolphins, etc.), sea birds (pelicans, etc.) and humans. There are other links in this

chain, including organisms which live in the sediments (the benthos) and feed on each other as well as microscopic organisms. Another aspect includes the marine bacteria, which have an important role as decomposers (helping to break down dead plant and animal forms) and as a food source for other organisms. Little is still known about their important role.

[54] This is a very simplistic picture and many of the details of marine ecology and food chain interactions are still a mystery to biological oceanographers (i.e., physiology, breeding, migrations, feeding habitats, etc.). With this very general background for a framework the report will now evaluate the DES. Detailed comments for each section covered will be found in Appendix III.

[55] The ocean is already absorbing considerable amounts of man's pollution. It is not a matter of immediately facing the "death of the ocean," as some have predicted, but more realistically having enough knowledge to protect this vital resource over longer periods of time.

2. General Comments

[56] Much of the DES is a summarization of general biological oceanographic information. For the most part this descriptive information is adequately covered. Its value, however, for assessing biological responses to oil development is questionable. In general there is very little information, either in the DES or scientific literature, capable of predicting oil impacts. The DES is relatively honest about these predictive limitations (see Appendix III); however, they do not provide adequate evidence that no long term damage would result from chronic oil development inputs.

[57] It is a general belief that major segments of the nearshore biosphere can handle short term acute inputs (oil, drilling, etc.). This means organisms will die, but eventually be replaced. The lack of any real hard data makes it difficult to quantify these time periods. It could be months, years or even decades for certain organisms

(i.e., large benthic clams). The real problem is that the report's purpose was not a literature compilation survey (which much of it is) but an assessment report analyzing the impacts of oil development (which it doesn't). On this level, it is difficult to draw any definite conclusions from the information in the DES.

[58]

Where original research is cited, no data are given. This makes a rigorous critique of the assumptions and conclusions impossible. This kind of analysis, in itself, represents a major project. The frequent comparison of the Dana Point-San Diego region (as well as the SCB) to other regions is almost irrelevant, as each tract in the region has unique features. On the other hand, breaking the SCB into discrete regions also has limitations because the area as a whole is a unique water mass (the Southern California Eddy) with widespread current mixing patterns.

[59]

Many of the assumed effects are not quantified. Terms like "minor," "immeasurable," "up to 5 years," etc. have no real scientific meaning. Furthermore, experiments are often lumped together without offering any statistical basis for comparison. These results should be critically questioned, as criteria need to be established when comparing studies.

[60]

Realistically, state of the art methodologies make any definitive impact statement difficult and unlikely. Spill analysis on marine communities is a very labor-intensive process (i.e., identifying the organisms accurately takes time), and effects studies in the laboratory also have limitations (i.e., "Is stress on the organisms due to the laboratory situation," etc.). In order to properly acquire a valuable and accurate baseline, significant resources must be mobilized. This means large expenditures of time, money and talent.

[61]

The DES has many inconsistencies in regards to the prioritization of the Dana Point-San Diego region (see Appendix IVA). The region has two unique areas of special biological significance (ASBS), where the report states: "... that no

acceptable risk of change in their environments as a result of man's activities can be entertained (p. 1266)." Furthermore the stipulations for ASBS regions require prevention of detrimental effects to the maximum extent (p. 13). Since the report indicates that oil platforms 3 to 6 miles off the coast would give a relatively good chance of contaminating an ASBS, one can only wonder why the Dana Point-San Diego region was given a positive priority for drilling. This seems to contradict the premises the BLM states for prioritization (pp. 23, 24).

[62]

Experimental design and sampling procedures are also open to criticism. Rocky intertidal studies for the Dana Point-San Diego region only took one station and primarily examined algae. It did not deal adequately with invertebrates. Benthic studies varied the screen size used to examine organisms. This meant that the more abundant smaller organisms were often not even included in the analysis (they passed through the screen) (see Appendix IVB). No criteria were given for comparing various sampling methods. These should ensure that samples be: (1) from similar habitats, (2) subjected to similar sampling procedures, (3) of similar sized areas and (4) subjected to similar taxonomic expertise for organism identification.

[63]

In summary, this report is premature and incomplete. It has a basic flaw in its logic that drilling is acceptable even though we are unable to assess future effects. Much more research must be done to enable adequate management and impact assessment of the SCB.

3. Critique of BLM Objectives

[64]

One reason the DES is overly ambitious and unrealistic in its attempt to assess impacts is due to the extremely limited amount of knowledge about any but the most general features of the SCB. Perhaps the major criticism of this program is that the BLM could have assumed that the two main stated objectives, (1) establishing baseline and benchmark conditions and (2) analyzing negative impacts (p. 28) could have been

realistically achieved in the time frame of the study.

[65]

The BLM bases much of its program research objective on the development of a baseline or benchmark description of the SCB environment. These studies' objectives are to determine major pollution characteristics, identify unique environments, and provide statistically accurate characterization of key environmental aspects (biological, physical, geological and chemical).

[66]

Had more thought and planning gone into program development before undertaking a variety of projects, it would have been obvious that the stated objectives could not have been met. The National Academy of Science report, "OCS Oil and Gas" (1978) has ten pages of summary findings and recommendations which are extremely critical of the BLM approach and objectives for environmental studies. Comments range from "... the current Program consists mainly of baseline or benchmark studies that will not produce adequate insights into the environmental effects of OCS activities" to "The current Program has provided scientific results of limited use either for management decisions or for better scientific understanding of the OCS environment (see Reference 1).

[67]

We agree with these findings, and others which briefly summarized indicate that: (1) marine populations living in the water column and sediments vary widely in space and time; (2) extensive population changes occur both seasonally and from year to year and that data acquired in the study regarding natural variability are not scientifically defensible in any rigorous sense; (3) the benchmark and baseline approach is unsuited for monitoring chronic low level inputs of petroleum; and (4) sampling is not sufficient nor statistically valuable.

4. Specific Comments

- a. Phytoplankton: These are microscopic marine plants that use the sun for photosynthetic growth. They are the first step in the marine food chain on which all other life is ultimately dependent.

[68]

- o Phytoplankton will return after short term acute effects (spills) as new organisms will wash into the affected area. A more serious problem is the chronic long term effects if the SCB is heavily developed. These inputs (numerous platforms, tankering effects, heavy metal and hydrocarbon pollution) could threaten the replenishment of phytoplankton. This problem has not been sufficiently addressed or analyzed.

[69]

- o An adequate assessment of turbidity impacts due to drilling muds and cuttings is lacking. Phytoplankton depend on light for survival and growth (they are plants). Any long term effects decreasing their productivity could have impacts further up in the food chain (on zooplankton, fish, etc.). This question is not so important from the immediate oil spill aspect, but rather from the long range effects throughout the SCB.

[70]

- o The DES states: "Except for the intertidal and shallow subtidal, the total productivity of the marine environment is dependent on the productivity of the phytoplankton (p. 121)." Yet the DES further states: "phytoplankton impact analysis is limited by the general lack of detailed information for the entire area, ... and the relatively few field and laboratory data for the major phytoplankton impacts discussed as a result of the proposed action (p. 787)." We can only wonder on what basis the DES summary (p. 805) of impacts as being "insignificant" is founded; certainly not adequate research.

[71]

- o The report fails to mention the controlled ecosystem pollution experiments (CEPEX) which have been underway since 1974 (see References 2,3,4,5). These experiments involve the addition of petroleum products to large polyethylene enclosures (60,000 liters) which are placed in natural environments. Though not all the data is conclusive, it is obvious that petroleum has some short term effects on some

species. Some phytoplankton increases in numbers while others decrease. Zooplankton changes have also been noted. These experiments need to be continued, as they approximate a natural environment which can be monitored for hydrocarbon impacts on the marine food chain.

b. Zooplankton: These are intermediate animals in the food chain and include fish and invertebrate larvae. They feed on phytoplankton, each other, and are the food stock of larger organisms (squids, fish, whales, etc.).

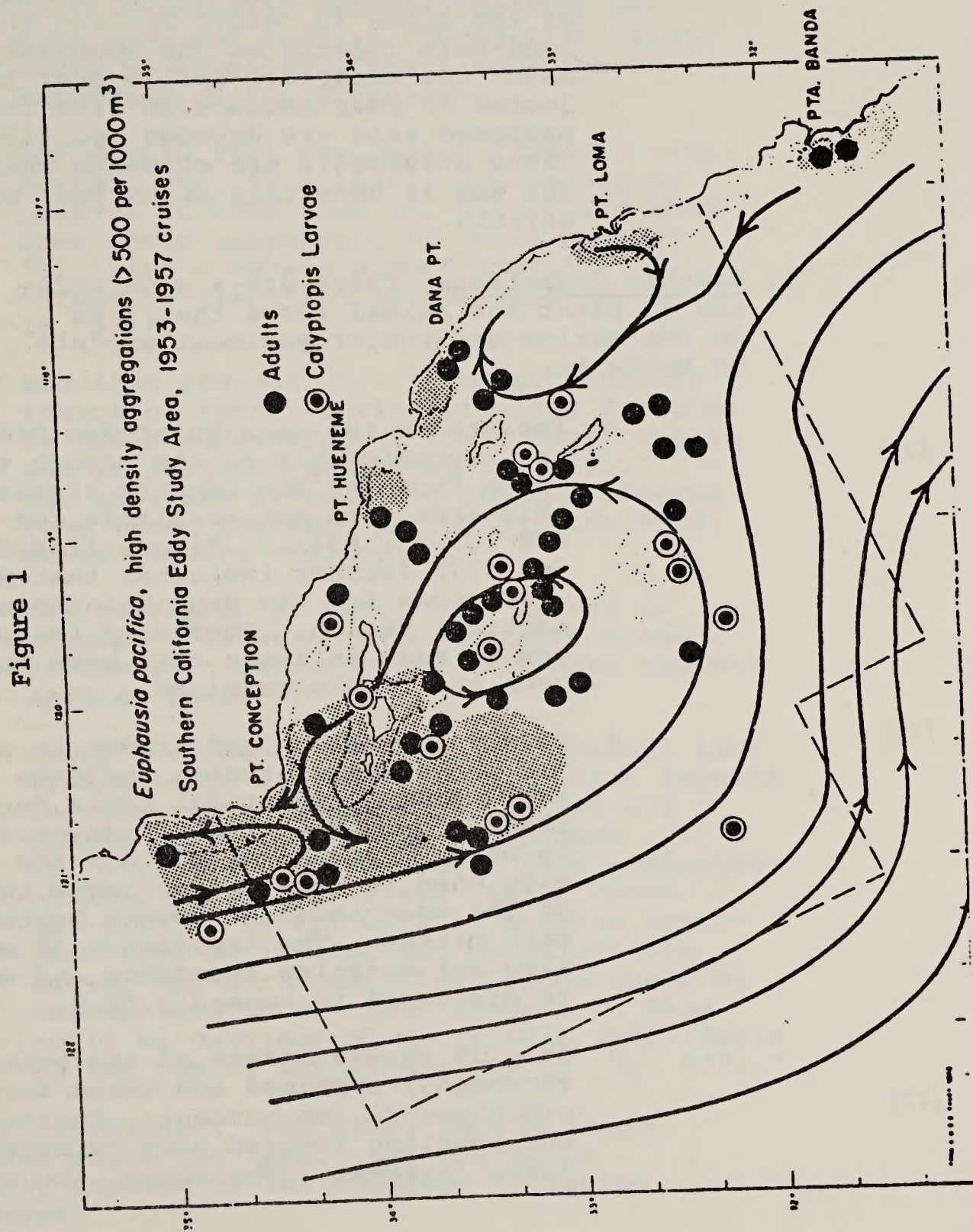
[72]

- o The DES claim that a significant proportion of the total zooplankton biomass is not represented by nearshore species is inaccurate. Many zooplankton (copepods, euphausiids, chateognaths) are found in the SCB in large numbers. The area appears to serve as a population center and nursery area.

[73]

- o Increasing biological evidence indicates that the SCB has a distinct eddy (current). Much of this surface water may recirculate in the SCB for 4-6 months with longer periods for the deeper water. This counter-clockwise flow may maintain a resident community of not only zooplankton (see Reference 6), but phytoplankton associated with them. The implication of this Southern California eddy on impacts is important. Its existence (which is also supported by current studies in the CalCOFI atlases) means that water is recirculating in the SCB. Therefore, any impacts (muds, oil, heavy metals) are not completely washed out of the area during certain periods, but rather may be recirculating and cumulatively affecting the marine ecosystem (see below: Ecological Interactions). Though the DES accurately describes the SCB current system as complex and variable, it minimizes the importance of this effect.

Figure 1 shows a generalized circulation pattern for the "Southern California Eddy" (from E. Brinton, SIO, unpublished). This current picture is based on data from the CalCOFI Atlases. It shows both the rapid southward-moving westerly current and the slower counterclockwise eddy in the nearshore region between Pt. Conception and San Diego. The nearshore region is an important nursery and breeding area for zooplankton, such as *Euphausia pacifica*. The shaded portions show areas of upwelling which bring nutrients to the surface waters, providing the basis for increased productivity at all levels of the marine food chain (phytoplankton, zooplankton, etc.)



[74]

- o The DES continually emphasizes the "minor and insignificant" impact of oil development on the zooplankton. Yet contradictions abound, with statements like: "severe kills of zooplankton or fish eggs and larvae from a large spill would damage only the zooplankton in the surface layer of the ocean (p. 814)" or "... the chronic, long-term impacts on the zooplankton from major and minor oil spills over the projected 25 year production life from this proposed sale are unknown (p. 817)."
- These statements are evidence that even the BLM is uncertain about real predictive effects.

c. Benthic Organisms: These are a wide variety of plant and animal forms that live on the marine underwater sediment surface or below it.

[75]

- o Impacts on the Dana Point-San Diego region are unpredictable as the report states: "Data from the BLM benthic stations within this area were not available for the DES ... (p. 834)." Figure II E.3.a.i.-1 (p. 177) further indicates that no samples were taken for the Dana Point-San Diego subtidal region. Obviously few predictions can be made in areas that have not even been adequately examined.

[76]

- o Sampling problems and errors in general for the benthic studies indicate a general lack of any statistical basis for comparison. Four intertidal sites were examined in Dana Point-San Diego, but the screen size used (1.5mm) was so large that two of the more abundant common beach organisms were missed. The importance of screen size and organism abundance and diversity is discussed in Appendix IV B.

[77]

- o Only 10 square meters of the bottom were thoroughly examined and these for larger organisms (1.5mm screen). Furthermore, the sampling focused only on areas of high lease interest. Therefore, the accuracy

of these studies for a baseline is highly questionable considering these biases.

- [78] o Acute impacts (spills, drilling muds, pipelines, etc.) will disrupt, smother and kill benthic organisms. These regions would eventually recover, however the time span for species composition return could be extended (from 1 to 20 years depending on the organism).
- [79] o DES admits that the impact from drilling, burial, etc. "are nearly impossible to predict at this time (p. 824)," and that some toxic components of drilling muds "... have a severe almost sterilizing effect on plant and animal life ... (p. 824)."
- [80] o DES also states: "... another possible source of impact during pipeline dredging is the resuspension of toxic heavy metals and persistent pesticides (p. 826)." The possible adverse and unknown effects from these sources, throughout the food chain require monitoring.
- [81] o DES states on p. 828: "... severe or chronic alteration of comparable areas of the environment could eliminate endemic species forever."
- [82] o Other statements indicating a general lack of knowledge and ability to predict impacts include: "The impacts of spilled oil ending up in the basins is unknown ... (p. 829);" "... the impacts from prolonged chronic pollution is not really known (p. 829);" "Direct kill to benthic organisms will be limited but unqualifiable extent and duration. Pesticides could be accumulated in the food chain This could be detrimental to certain individuals at the top of the food chain ... (p. 837)."

d. Rocky Intertidal: the tidal zone is where the sea meets the land. The region is usually exposed to the constant agitation of waves.

- [83] o The DES sampled only one site in the Dana Point-San Diego region. This study dealt primarily with marine algae and neglected any detailed analysis of marine invertebrates.
- [84] o Previous spills have indicated that: "immediate catastrophic and later chronic effects can result from a single oil spill (p. 839)" and "severe or chronic alteration of comparable areas of the environment could eliminate endemic species forever ... [and] ... a large spill could eliminate a sensitive rare endemic with a restricted geographical range from the Bight area (p. 844)." Other quotes in this vein are found in Appendix III.
- [85] o Sandy beaches have: "not been as extensively studied in relation to oil spills (p. 848)" and "... lack of previous baseline study(s) ... could form no definitive conclusions (p. 848)."
- [86] o Considering that: (1) 20% of the Southern California coastline is rocky intertidal (p. 195) and (2) portions of the San Diego-La Jolla region are classified as ecological reserves and areas of biological significance (p. 940; Table III C.1.j-1), one can only at best consider this section as wholly inadequate for assessment of oil impacts on the rocky intertidal.
- e. Nekton: These include the free swimming fish and invertebrates (the DES also discusses fish eggs and larvae as part of the nekton).
- [87] o The general qualitative data are good; however, few quantitative population studies exist for ocean fishes.
- [88] o One allegedly positive aspect of drilling platforms is the creation of reef environments which attract fish in large numbers. The areas immediately under and surrounding these platforms, however, are off limits to commercial and sport fishermen.

[89]

- o The DES fails to deal adequately with oil development on fish larval survival. Certain previously important commercial stocks, like the sardine, however, are now struggling to maintain their populations. They come inshore to spawn in isolated regions of high productivity. These areas (like Santa Monica Bay) represent breeding grounds for fish stocks that are at risk. If they are destroyed by a serious spill the species could become extinct in this region.

[90]

- o Recent research has indicated that certain pollutants cause changes in zooplankton physiology which disrupts feeding habits. These pollutants can also enhance the growth of some phytoplankton over other species. This in turn can have a negative zooplankton growth effect by not providing the proper kind of food. (See Reference 7.)

[91]

- o The DES states: "... any factors which affect the distribution of nekton (temperature, food availability, currents, etc.) ... would be difficult, if at all possible to predict at this time (p. 862)." It then contradicts itself with: "... no overall adverse effects upon nektonic populations may be expected as a result of the proposed action (p. 862)."

5. Unavoidable Adverse Effects

[92]

In pages 1262-1266 the DES indicates the possible impacts of oil development on marine organisms and habitats. Though there are a number of unqualified statements, the section clearly indicates numerous destructive effects. We basically agree with these findings.

6. Other Comments

[93]

a. The DES fails to adequately study the important role of bacteria in the marine ecosystem. (See Appendix IV C.)

[94]

b. The number of rare and endangered species for the Dana Point-San Diego region includes 4 bird species and 7 whales that migrate through the region. DES states that: "Whales are potentially very vulnerable [to oil] (p. 906)." Conflicts with the Endangered Species Act of 1973 should be further researched.

[95]

c. The DES minimizes the impacts of successional changes on organisms after an area has been disrupted. The organisms in the ocean are not living isolated, discrete lives. There is a complex food web interconnecting all sea life. The DES only devotes seven pages (pp. 947-953) to impacts on the marine food web. This is a serious limitation.

[96]

d. The impacts of oil-related pollutants on human food sources have also been minimized. This deserves further serious consideration as some of these compounds may have the potential to cause cancer in minute amounts over long periods of time.

[97]

e. The effects of oil on the harvestable Giant Kelp (Macrocystis) has not determined its impact on kelp reproduction. DES states: "In certain species, this mucilage may be absent in reproductive forms, ... making them potentially more susceptible to oil and increasing the probability of severe damage ... (p. 913)"; and "... all life cycle stages of Macrocystis, except the gametes, probably has a mucilage covering around it ... (p. 913)." The DES kelp bed area estimates are based on aerial photos. These are known to be significantly affected by currents, tidal height, wave conditions, canopy development and encrustation. These limit the accuracy of this method for kelp cover baseline conditions.

[98]

f. Little assessment was made in the Dana Point-San Diego region of trace metals and hydrocarbons.

[99]

7. Ecological Interactions: A Scenario

One aspect of the DES minimizes the impacts of drilling muds, cuttings and formation water. These physical inputs could have varying effects on many aspects of the food chain. The total figures for these inputs are questioned in Appendix V. Whatever the correct amount, the number of barrels is not a totally sufficient factor from a biological point of view. One must consider numerous effects including: (1) the effects on water turbidity (which can limit the light necessary for phytoplankton growth); (2) how long these inputs will remain in the Dana Point-San Diego region as well as SCB (see comments on Southern California eddy, p. 19); (3) the total cumulative inputs from not only the San Diego region, but the whole SCB, including previous tracts and wells in operation (approx. 2700 with Lease #48); (4) the smothering effect on benthic organisms; (5) the toxic effects of heavy metals on nekton; (6) the toxic heavy metal sterilizing effects (p. 824); and (6) the inputs of oil and grease in formation water.

[100]

The toxic heavy metals shown to be released in formation water are anywhere from 3 to 1600 times those normally found in sea water (Appendix V). Heavy metal uptake has been shown in numerous marine organisms (shrimp, fish, etc. -- see References 2,3,4,5) and can be responsible for crippling human diseases (Minamata disease - Japan). The long-term cumulative effects of these various compounds, throughout the food chain, and their ultimate effect on humans still requires extensive examination. This simplistic example doesn't even touch on the effects of petroleum products (many of which are carcinogenic), their residence times in the ocean, and pathways and uptake in the food chain.

[101]

The point of this scenario is to show that the DES does not really integrate these various effects, nor has adequate data and research to clearly state that there will not be extensive ecological effects in the future (as in the case of DDT, asbestos, etc.). One can only hope that caution, coupled with well executed research, will be the guideline. A letter in Science has

summarized the findings of a recent symposium (Appendix VI) which has addressed this issue of oil in the marine environment with the following comments: "The two most noteworthy points arising out of the presented papers and discussion were the persistence of petroleum hydrocarbons in the environment and the evidence for persistent physiological and community disruption for at least a decade following oil spillage."

[102]

Oil is part of the future energy scenario for the planet: We must be able to make realistic and educated decisions about its effects. This is one purpose an impact statement should serve and that the Lease Sale #48 fails to fulfill.

D. SOCIO-ECONOMIC IMPACTS

[103]

1. Amenity and the Regional Economy

The economy of the San Diego region is unique and largely tied to the quality of its environment. (References: 10,11) The ocean resource is an important component of the overall environmental quality of the region. The following types of economic activity depend for their growth and expansion on continuation of a quality environment:

- tourism and recreation
- research and development (in ocean-oriented industries and other types of research activity as well)
- office location, in particular headquarters offices
- retirement

As a result of a combination of forces, operating over time, San Diego has evolved a highly specialized economy, that differs in many respects from that of its neighbor counties, and that of the nation as a whole. Because of the region's distance from major consumer markets, it has not and is not likely to develop strength as a manufacturing center for other than high value, lightweight commodities. This point has been made in numerous economic studies of the region over the years. (See, for example, CPO Industrial Activity Centers report, which consolidates and references previous research on this subject.) Thus, losses in amenity-dependent sectors of the economy could not be so easily replaced with manufacturing and service activity in San Diego County, as in Los Angeles and Orange counties, which enjoy a more central position as distribution points to surrounding populations. San Diego, conversely, is an "end of the line" point from the transportation perspective.

The region, in other words, faces the dilemma that while the risk of negative impact may be low

(as defined by the probability of oil spills or the level of interference with economic activity occasioned by various exploration activities), the irreversibility of loss is high and there is limited ability to mitigate or cushion losses through transition to alternative types of economic activity. There would appear to be, then, valid reason for singling out San Diego region for special analysis of impacts, and definition of mitigating measures that may differ from those applied to other areas of southern California.

2. Economic and Fiscal Impacts

[104]

We are in general agreement with the DES analyses of direct economic impacts of the lease sale. Impacts are minimal, because the assumption has been made that there will be no on-shore activity related to the lease sale taking place in San Diego region. The on-shore activities are directed to less "frontier" areas such as Los Angeles, Orange and Ventura counties. Major on-shore activity takes place in Ventura and Los Angeles counties with some support activity in Orange County. San Diego region population and employment are one step further removed, and include a minor portion of Orange County activity.

[105]

Fiscal impacts should, however, be re-analyzed, for San Diego region and for the balance of southern California, to reflect changes in revenue availability as the result of passage of Proposition 13, and associated follow-up legislation. Fiscal impacts on the region were negative, but minor, pre-Proposition 13. They are likely to be more strongly negative post-Proposition 13, but still relatively minor in total region-wide context.

[106]

The more important potentially negative fiscal impacts are those associated with reduced tourist/convention/visitor activity. The tourism/recreation analysis is inadequate. When it has been expanded, estimates should be made of fiscal impacts. Table 1 shows the revenues that local jurisdictions in the San Diego region derived from hotel-motel tax in Fiscal Years 1972-73 through 1976-77. These non-property tax revenues have

TRANSIENT OCCUPANCY TAX COLLECTIONS
IN
SAN DIEGO REGION

AGENCY	1972-1973	1973-1974	1974-1975	1975-1976	1976-1977	ANNUAL COMPOUNDED RATE OF INCREASE
CARLSBAD	124,792	195,953	209,818	279,385	300,000	
CHULA VISTA	71,924	88,406	108,704	125,570	130,000	
CORONADO	111,040	160,536	213,817	282,019	350,000	
DEL MAR	17,520	18,287	19,939	26,095	26,000	
EL CAJON	53,314	55,560	63,417	88,052	75,000	
ESCONDIDO	47,250	52,232	60,922	74,814	73,500	
IMPERIAL BEACH	10,472	12,729	16,184	19,034	17,000	
LA MESA	-	-	-	-	15,000	
NATIONAL CITY	12,021	13,767	15,318	17,185	22,000	
OCEANSIDE	87,049	82,039	97,076	121,862	135,000	
SAN DIEGO	2,265,792	3,056,929	3,576,735	4,199,429	4,845,000	+21%
SAN MARCOS	975	1,218	837	1,152	1,000	
VISTA	7,114	11,426	16,459	19,169	22,000	
COUNTY OF SAN DIEGO (Unincorpor- ated Area)	259,468	221,017	273,564	299,797	325,000	+5.8%
GRAND TOTAL	3,068,731	3,970,099	4,672,790	5,553,563	6,336,000	
TOTAL EXCLU- DING CITY & COUNTY OF SAN DIEGO	543,471	692,153	822,491	1,054,337	1,166,000	+21%

All information provided by the government entity involved, including preliminary estimates of revenue for 1976-1977.

Source: The Visitor Industry: Its Potential in San Diego County, San Diego Conv. & Visitors Bureau, April 1977.

become more important in financing local government, since Proposition 13 has reduced ability to finance services through the property tax.

[107]

In addition to hotel-motel tax revenues, tourist and visitor contribute to the retail sales tax collections that help to finance local government in the region. It is estimated that roughly 25% of retail sales (and associated tax revenue) in the region is derived from visitor expenditures.

3. Modeling Lease Sale Impacts

[108]

The Harris model is appropriate to use for initial, broad gauge analysis at the macro-regional level. However, it does not (and does not purport to) provide finer-grain analysis of impacts at the county level. The analysis should be expanded and detailed to the San Diego region level, to provide a more accurate statement of impacts on this region. As it stands, the Harris analysis leads the reader to assume that impacts on San Diego region will be generally the same as those on other southern California counties. This is not the case. More refined analyses would illustrate that point.

[109]

The San Diego economy is unique in the nation, in a number of respects: high service orientation, high military presence, direct connection between amenity level and economic base. These points are amplified in later sections of this report. Furthermore, the region, because of its unique economic structure, would be less able to readjust to other types of economic activity if the present base were negatively affected. Third, the impacts on this region are in most cases directly traceable to activity on a small number of tracts (Dana Point-San Diego segment) within the total lease sale area. The analysis should call out more directly the costs and benefits of leasing that specific area versus the impacts on the San Diego region.

[110]

The methodologies used by Gordon and Richardson (at Chapter 5 of Reference Volume 4) are more appropriate than the Harris model, for taking the analysis to the next level of detail (San Diego region level). (See pp. 120-21,

133-35 of that document for description of differences between the two approaches.) The Richardson-Gordon approach was applied to analysis of Los Angeles and Orange County impacts, but not to the San Diego region. The DES should be expanded to include a more fine-grained analysis of San Diego region impacts. Such an analysis would permit more accurate estimation of local impacts -- in particular, impacts on tourism/recreation, military activity, and ocean-oriented research and development activity.

[111]

BLM should adapt the Richardson-Gordon approach to include unique San Diego region relationships. The data needed for these types of analysis are available in the San Diego region, at various levels of detail, in models and statistical collections maintained by CPO, Econometrics Research Associates, Copley International, County of San Diego, Convention and Visitors Bureau, and other agencies and firms. For example, the Demographic and Economic Forecasting Model '78, recently developed by Econometrics Research Associates, provides an up-to-date and fine-grained method of assessing both the positive and negative impacts of OCS operations. This model was jointly produced by CPO, the County IPO, City of San Diego, and SDG&E.

4. Ocean-oriented Industries

[112]

More attention should be directed to the potential disruption of operations of ocean-oriented industries by activities related to the lease sale. These industries are important to the region's economy. In many instances they are related to the region's military activity. Therefore, reductions in certain types of military activity might result in parallel shrinkage of the private sector oceanographic complex.

[113]

The most recent listing of firms and government agencies engaged in ocean-related activity is that prepared by the San Diego Chamber of Commerce in 1973. Analysts of the local economy estimate that the ocean industry complex has expanded since that time.

[114]

The military/civilian interconnection stems from the fact that much civilian research work

(for example, the bulk of the Scripps Institution for Oceanography budget) is provided from military sources (generally Navy and Commerce). The Navy and Department of Commerce themselves have major research-related installations located in the region, as well -- such as the Naval Ocean Systems Center and the Department of Commerce's National Marine Fisheries Service. Many of the smaller firms in the ocean industry complex provide short-term, specialized services to the major institutions, thus creating a multi-tier set of sub-contractor relationships.

5. Commercial Fisheries

[115]

The information needs updating to reflect current landings for San Diego region. Report states that value of fish landings for all of southern California was \$104.9 million in 1974. A more recent study, in 1977 -- San Diego Economic Profile by the Economic Research Bureau of the San Diego Chamber of Commerce -- shows that the value of San Diego landings alone was \$271 million in 1976. This study more completely includes an economic multiplier to show the economic effects of the fishing industry. Secondly, the economic impacts on smaller fishing operations is not assessed in the event of a spill.

6. Tourism and Recreation

[116]

The DES understates potential impacts on tourism and recreation in the San Diego region. For example, the value of a tourist-day is grossly understated at \$4 (p. 1283). The value is closer to \$20 (source: San Diego Con-Vis Bureau). The description and importance of the tourism/recreation complex (at pp. 400-406) is incomplete. It should be noted that 76% of all visitors to San Diego participated in water-related activities; 24% went to the beach, vs. BLM's 14% figure. Up-to-date statistical material is maintained by the San Diego Convention and Visitors Bureau.

[117]

More mention should be made of the wide range of tourist location choice, and of sensitivity of tourist choices to environmental considerations --

either existing or perceived. San Diego region convention and visitor traffic is becoming increasingly national and international in source. This trend has been noted in Convention and Visitors Bureau reports, such as Profile: San Diego's Visitor Industry in 1982 (December 1976). The trend has accelerated in the past year, as the result of international currency imbalances that have made the United States, generally, a more desirable destination for the non-U.S. visitor than had previously been the case. The international visitor is highly selective. While San Diego is now a favored destination, for the international visitor other locations are continually competing with this region for the visitor dollar. Less of this type of visitor could seriously impact the local economy.

The above-mentioned Profile report noted:

"San Diego has comparatively few basic industries The projected growth of the visitor industry, both in absolute and relative terms, will make it increasingly the key to San Diego prosperity and employment."

7. Military Operations

[118]

The importance of military operations to the region's economy should be brought out more clearly. The table on page 477, which shows San Diego region wage and salary employment for the period 1976-78 at 556,400 omits the military employment component of the region's economy. The table on page 462 shows this employment total to be (for 1975) 108,700 persons. The figures in these two tables should be integrated to illustrate the far greater significance of military employment to the San Diego region than to other southern California jurisdictions affected by the lease sale.

[119]

The table on page 462 points out that San Diego region military employment is 74% of all southern California military employment (108,700/146,700); and roughly 40% (108,700/274,000) of the state's military employment.

More detailed analysis of the individual components of the San Diego military complex can be found in the County of San Diego, IPO, report, Proposed Military Base Realignments: Preliminary Information on Impacts (July 1978, currently undergoing revision). This type of detailed analysis should be expanded in the final ES, to show the degree to which each component of the naval operation requires continuing open access to the ocean resource for military maneuvers, training, research, or other activities.

8. Refinery in San Diego County

[120] The DES, in its assumptions about OCS-related onshore facilities, makes no provision for a refinery in the San Diego region, relying instead on either pipelines or tankering to transport oil and gas found in the Dana Point-San Diego area to existing refineries and processing facilities in Long Beach and Los Angeles. This assumption is probably correct, based on current information. First, the resource estimates in the Dana Point-San Diego tracts will not produce enough daily flow to warrant a local refinery or processing plant; second, the oil industry does not regard a new refinery as being economical. A spokesman for the Western Oil and Gas Association has stated that existing capacity, some of it recently expanded in the LA/LB areas, will be able to process the projected Lease Sale #48 production, and that it is neither necessary nor economical to construct another refinery in the southern California area.

[121] If the oil and gas resources near San Diego turned out to be much greater than now anticipated, there is the possibility that on-shore facilities, such as processing plants, could be located in San Diego region. OPR's Offshore Oil & Gas Development report speculates on this, but it does not state its underlying assumptions.

9. Economic Impact of Deletion of Dana Point-San Diego Segment

[122] If the Dana Point-San Diego segment of the lease sale area is deleted, the economic effects will be of three separate and distinct kinds.

[123] First, the employment impact associated with lease sale activity would be reduced by a slight degree. The employment increase attributed to the region (1398 jobs, at peak, 1986) (Ref.: Reference Paper No. 4, on p. 57) represents jobs created in association with all lease sale activity, not specifically that taking place in the Dana Point-San Diego segment.

[124] Second, to the degree that this reduced employment led to reduced services-requiring population additions in the county, local jurisdictions would benefit, in the fiscal sense.

[125] The major potential economic impact, however, would be a significant reduction in risk of loss of irreplaceable components of the economy (tourism/recreation, ocean-related industries, etc., discussed in other sections of this report). With regard to this form of economic impact, the connection between activity on the Dana Point-San Diego segments and the risk of negative impact is more direct. Deletion of the 26 tracts significantly reduces the chances of major economic harm to the region.

E. ALTERNATIVE ENERGY SOURCES

- [126] The DES seriously understates the potential for use of alternative energy sources. In particular, it does not incorporate the most recent federal research available on the likely degree of feasible use of solar energy. Recent reports have concluded that solar energy will be feasible for more types of applications, and sooner, than had previously been assumed.
- [127] This research includes such documents as: U.S. Government Federal Policy Task Force Review Group, Solar Energy Analysis (draft report issued September 1978); and U.S. Council on Environmental Quality, Solar Energy: Progress and Problems (1978). More specifically related to California is the report Distributed Energy Systems in California's Future (interim volumes issued in 1978). This report represents Phase I of a joint project of Lawrence Berkeley Laboratories/Lawrence Livermore Laboratories/University of California/Berkeley and Davis campuses; and the U.S. Department of Energy.
- [128] It should be noted, also, that ongoing programs of local government and private industry in the San Diego region provide confirming evidence of the direct application and feasibility of solar energy and other alternate energy solutions in this setting at the present time. References: CPO Regional Energy Plan; County of San Diego, Energy Office, various reports; Southern California Solar Energy Association, Regional Solar Energy Directory.

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11. County of San Diego: Regional Growth Management Program, Economic Background Report, 1978.

APPENDICES

Analysis of Draft Environmental Statement for OCS Lease Sale No. 48

APPENDIX I

A Summary Report of the Regional Geology, Petroleum Potential, Environmental Geology, and Technology for Exploration and Development in the Area of Proposed Lease Sale 48, California Continental Borderland

APPENDIX II

Oil Spill Risk Analysis

APPENDIX III

Detailed Comments, BLM DES

APPENDIX IV

Prioritization of Dana Point-San Diego

APPENDIX IV B

Screen Sampling Size Effects

APPENDIX IV C

Marine Bacteria: Worst Case Scenario

APPENDIX V

Specific Comments on the Effects of Formation Waters and Drilling Muds

APPENDIX VI

Introduction to the Symposium on Recovery Potential of Oiled Marine Northern Environments

APPENDIX VII

Stipulations to Lease Sale No. 48

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Appendix III

DETAILED COMMENTS, BLM DES

<u>Page</u>	<u>Comment</u>
21 [129]	We need more details on DOD conflicts noted here; similarly, on commercial fishing impacts noted. What comments received by BLM? What fishing impact analysis?
45 [130]	The Status of the SOHIO Pipeline needs to be stated here. The capability of the Southern California region to process the product of Lease Sale No. 48, including spills, is vitally dependent on the existence of the SOHIO Pipeline.
77 [131]	Surface circulation shown in both meters and fathoms. Which is it?
174 et seq. [132]	What is the value of the lengthy discussion of the environment and impacts on the environment, concerning CENTRAL and NORTHERN California? Lease Sale No. 48 stops just north of Santa Barbara.
345 [133]	Unclear from table what area of county is within "area of leasing influence."
367-68 [134]	Impacts of program on identified military operations should be further examined.
378 [135]	<u>Recreation.</u> A County-by-County breakdown should be given of visitors and visitor dollars spent, and the importance of this industry to each economic area.
400 [136]	The description of the San Diego region's recreation and allied resources using pre-printed County material indicates the researchers were looking for readily available summaries of the attributes of each area, rather than finding out for themselves what the recreational attributes of San Diego region were and are.
416-17 [137]	Importance of tourism/recreation activity to Baja California economy, and connections between Baja and San Diego economics need more thorough analysis.
455-543 esp. 476-77 [138]	Report improperly lumps the San Diego economy in with balance of southern California, with the result that the San Diego region's unique dependence on high-quality amenity environment, ocean-related activity, and naval activity is understated and masked.
477 [139]	Table shows civilian employment only. Should include military employment, to indicate its importance. The SOURCE of the table has been omitted.
489 [140]	What is source of statement, "The business development climate in the State, which will remain murky, will also be a formidable obstacle (to growth in the Gross State Product)"?
500 [141]	The discussion accompanying this table needs to be updated to reflect the 60% reduction in property tax revenues resulting from the passage of Proposition 13.

<u>Page</u>	<u>Comment</u>
513 [142]	The volume and value of commercial fisheries landings in the San Diego region alone far exceed the figures cited in the DES for all of Southern California. The figures used are sadly out-of-date and need revision. Source of up-dated information: <u>San Diego Chamber of Commerce, San Diego Economic Profile 1977</u> . This publication is an excellent source of other updated economic data.
	As a related comment, there is no section in the 70-page reference section (pp. 1575-1645) relating to socio-economic impacts per se. Apparently the authors developed their own new raw data, or didn't find the sources they used worth citing.
610 ff. [143]	Oil spill response capability should include program for assisting rapid recovery of tourist/visitor business in impacted areas (advertising, etc.)
642 [144]	Shows 10 miles of pipeline for San Diego, yet table on p. 646 shows 15 miles.
646 [145]	Where will the offshore storage and treating facility be?
648 [146]	Claims artificial reef effect of pipeline as positive effect -- but will also mean increased foraging of benthos epifauna.
649 [147]	Admits drillships and pipe-lay barges could cause navigation hazards in shipping lanes.
653 [148]	Oilwell blowouts due to equipment malfunction, workover procedures, human errors, storms, collisions.
653 [149]	Based on Gulf of Mexico (not totally relevant to Dana Point-San Diego area), Sale #48 will produce 1 to 3 blowouts of from 1,000 to 3,000 barrels of spilled oil. However, a single incident spilled 53,000 barrels; this worst case analysis is not considered in DES.
654 [150]	Tanker operations add more oil to oceans than accidental spills -- what precautions to protect San Diego? For every 74 wells drilled can expect fire or explosion with average spills equalling 461 barrels. The total SCB leases could mean 38 fires and explosions.
659 [151]	"At present the methods for computing the estimated volume of oil that might be spilled or released from tankers are quite inaccurate."
	SD tracts will use 10,000 barrel barges to transport oil to Long Beach (54 hour trip).

<u>Page</u>	<u>Comment</u>
661 [152]	Figure doesn't indicate pipelines for San Diego offshore, yet claims 15 miles on p. 646.
663 [153]	Table shows only 0.12 spills for Lease Sale #48 in San Diego, yet on p. 655 claims 0.17.
665 [154]	"Pipeline breaks and leaks accounted for 29% of significant pollution incidents and 27.7% of oil spilled." Why not in table on p. 652?
669 [155]	"Still lower possibility of a spill due to tsunami." What is that prediction based on -- could be one tomorrow; was one in early '60s.
676 [156]	Later discussion of oil spill model states on p. 869, the "model is not accurate for spills close to shore." This fits most of the Dana Point-San Diego tracts. Model doesn't consider worst case analysis or cumulative effects in any detail. Effects of future beyond #48 not dealt with either.
689 [157]	Doesn't include yellow tail sportfishing, one of most important sportfish.
708 [158]	Table for impacts indicates that San Diego has all resource categories except 5 (i.e. 13 out of 18, one of highest in all of segments).
709 [159]	"yet to be a complete analysis of a single crude oil" -- then how can we predict carcinogenic and other effects absolutely?
713 [160]	DES based most of analysis on oil in marine environment on NAS report dated 1975, really based on 1973 work. Doesn't reference more recent and important literature including CEPEX experiments.
718 [161]	"Extent of the mortality depended on local conditions and was greatest when the releases of oil were confined to inshore areas where natural marine resources were abundant," like La Jolla and Mission Bay.
718 [162]	"Recovery may vary from a few months to several years, etc.": very generalized. How does it relate to San Diego?
718 [163]	States that effect of oil on ecological community is a slow rate of reproduction and growth.
719 [164]	Claims isolated estuaries could take very long time (what does that mean -- 10 years, 100?) due to effects of oil pollution. Recognizes that estuaries provide shelter for larval stages of important commercial fisheries.

Page	Comment
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719 [165]	"There is very little data on the effect of oil on pelagic species. Without more research, it is clearly premature to conclude anything about the effects of oil on the open ocean."
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"Effects of oil in the marine environment on human health is extremely limited." What are carcinogenic effects?

725 [166]	"It appears to be a reasonable assumption that wherever a spill were to occur in California waters, oil spill equipment would be deployed between the spill and any shore line before it could reach shore." What is that based on? Three quarters of equipment in San Diego is government owned (4 clean-up resources).
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But DES then claims "an oil recovery effort may not be able to prevent all oil from impacting a beach."

DES claims dispersants are useful tools. But it has been shown they can cause more damage than an oil spill itself.

728 [167]	22,000 feet of oil booms are available in San Diego, all controlled by only one private company. How much practice have they had in use, preparation, etc.; how effective in case of storms, etc.?
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730, [168] 744-47	Impacts should include tourism, recreation, military, ocean related industries.
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744 [168a]	Left out San Diego ASBS.
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767 [169]	Sale #48 predicts 3 deaths and 943 injuries; what is cost of all this?
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781 [170]	"the lack of knowledge concerning the effects of long term low level (chronic) oil pollution on marine organisms should be added to the above generalizations" So how can one predict impacts?
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786 [171]	Toxic effects of drilling muds: "smothering effect" means kills; chronic effects due to recirculating in Bight eddy are not dealt with.
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Phytoplankton

789 [172]	Uses words like "minor," "immeasurable," etc., which have no quantifiable basis.
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792 [173]	"The limited number of field studies conducted after major oil spills examining impacts on phytoplankton have detected no significant impacts" How can limited studies predict anything? Not enough known.
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Page Comment

796[174] DES quotes Straughan paper numerous times but admits later "the plankton ... were sampled and reported in such a way as to make it impossible to decide whether there was or was not an effect of oil"

801 Predicts impacts on phytoplankton from platform and rig
[175] discharges will be insignificant. What is basis for this?

805 Baja California: DES claims that spills from SCB would
[176] remain offshore and not hit Baja. This is untrue; CALCOFI atlases show that current pattern would allow shore impacts in Mexico.

Summary: Impacts "not significant": no basis is given for this statement.

806[177] "Because of the natural variability of phytoplankton productivity and abundance in the dynamic ocean surface layer, major adverse impacts would probably not be measurable in the open ocean environments" Does that mean we should ignore their effects?

Zooplankton

807[178] "These areas reflect contribution from dense zooplankton populations in the California current in colder waters further north off Central and Northern California." It is more likely that populations reflect local processes.

" ... this vertical patchiness in distribution and abundance adds to the complexity and variability of zooplankton patterns in surface waters at any given time." Patchiness occurs far more readily in the horizontal plane; vertical column is very ordered.

808[179] " ... this impact analysis is limited by the lack of detailed information for the zooplankton for a given area over a short period ... "

"Toxic and sublethal effects from oil spills would cause the most significant impact on zooplankton populations in the ocean surface layer."

809 Discussion of Gulf of Mexico drilling mud inputs are not
[180] totally relevant to SCB; different parameters.

"The local increased turbidity caused by the plume could have a smothering effect on some zooplankton species"

"This smothering effect from turbidity would cause minor, short-term impacts on the zooplankton populations that pass through the plume"

<u>Page</u>	<u>Comment</u>
809 [181]	"This effect would have a minor and probably immeasurable, impact on the zooplankton population of the SCB." These statements are not sufficiently quantified, effects may be minor at one time but the cumulative effects are not even considered.
810 [182]	" ... the field and the extent of the plume around the exploratory rig, ... would have a minor impact on the zooplankton" No basis for statement, not quantified.
811 [183]	"Impacts ... from discharged formation water could include physiological stress from dissolved salts and stress from low-discharged oxygen."
	"In summary, the impacts of discharged formation water from the production phase could not have a significant impact on the zooplankton populations in the SCB." Nothing quantifiable to support his statement.
812 [184]	"Impacts on zooplankton from oil spills could range from lethal effects for a high oil concentration in the surface layers of the water column after a major spill to sublethal effects such as abnormal feeding and behavioral patterns" What are the chronic and foodchain impacts of this???
	"From laboratory results fish and invertebrate eggs and larvae can be lethally affected by oil concentrations greater than 1/ppm"
	"The limited number of field studies conducted after major spills examining the impacts on zooplankton have detected no significant impacts ..." Not enough research to date and no references given for this statement.
813 [185]	Re: Santa Barbara spill experiments: " ... in a critique of the report stated that the shortcomings of the methods did influence the overall assessment of little damage to the marine environment in the Santa Barbara Channel." Connell (1973) concluded that "the plankton ... were sampled and reported in such a way as to make it impossible to decide whether there was or not an effect of oil." DES continually refers to no negative impacts from SB spill based on experiments that later were criticized by the scientific community.
815 [186]	Conclusions in paragraphs 2 and 3 don't consider Southern California Eddy impacts of recirculating effects from spill. Statement (paragraph 3) that spills "should not have a significant impact on zooplankton populations in SCB" has no quantifiable basis.

<u>Page</u>	<u>Comment</u>
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| 817[187] | "As discussed previously, the chronic, long-term impacts on the zooplankton from major and minor oil spills over the projected 25-year production life from this proposed sale are unknown." |
| 818[188] | Statements on insignificant number of spills for Dana Point-San Diego are questioned as they are based on oil spill trajectory model, whose assumptions we have already criticized. |
| 820[189] | Impacts discussed in paragraphs 4 and 5 from drilling muds, etc. stated as "low" have no quantifiable basis and don't consider recirculating effect of Southern California Eddy. |
| 821
[190] | Discussion in paragraph 4 about cumulative impacts as being short term is questionable; chronic recirculating effects are ignored. In fact, it is so stated in paragraph 5: "The chronic, long-term effects of additional oil spills from the proposed and related action are unknown." |
| 822[191] | Statements in paragraph 1 on Baja California are not accurate; waters from SCB do not remain offshore but in fact come inshore and impact beaches. Summary statement in paragraph 4 uses terms like "not significant," "unknown," "low to insignificant": no quantifiable basis for them. |

Benthos

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| 823
[192] | " ... under the right conditions petroleum hydrocarbons can cause a severe impact on the benthos." |
| 824
[193] | Re: drilling and muds: "The extent and duration of the impact are nearly impossible to predict at this time." Also "If, ... the drill cuttings are wholly foreign in consistency and composition, the deposit might remain barren for a long period or be populated by different types and numbers of animals." What does that mean in terms of food chain impacts/disruption? |
| 824[194] | Re: toxicity of drilling muds: "In upland operations barium compounds have a severe, almost sterilizing effect on plant and animal life in the soil (EPA, 1972)." |
| 825
[195] | Re: toxic muds: "Once on the sea floor, chrome ligno-sulfonate is fairly resistant to biodegradation, however, certain benthic invertebrates are known to concentrate trace amounts of various heavy metals over extended time." What are the impacts of this on the food chain and on human food sources? |

<u>Page</u>	<u>Comment</u>
826[196]	Paragraphs 1, 2 and 3 indicate the extent of impacts on benthic community due to pipeline construction. "Obviously, we must conclude that the benthic community will be disrupted or destroyed in the path of pipeline dredging operations."
828[197]	Destructive effect of hydrocarbons on benthos are detailed. Recent work shows even longer lasting effect (see Appendix VI). "It is easy to speculate the obvious implication of this: severe or chronic alteration of comparable areas of the environment could eliminate endemic species forever."
829[198]	"The impacts of spilled oil eventually ending up in the basins is unknown." "... although the impacts from prolonged, chronic pollution is not really known."
830[199]	Microcrustaceans are reputed to be very sensitive to oil contamination -- they are major gray whale food source.
831 [200]	Fig. III.C.1b.1. No sampling done in Dana Point-San Diego region.
834 [201]	"Data from BLM benthic stations within this area (Dana Point-San Diego) were not available for the draft EIS ... " Nevertheless this region will be impacted and deserves some basic research on benthos.
835[202]	Section on Tanner-Cortes Area indicates the presence of a living fossil mollusc (<u>Neoplina</u> sp.) "From a scientific and evolutionary standpoint, it is important to preserve this species for study." Claim that oil lease operation will not destroy it are not detailed. Muds, cuttings, etc. might have effect.

Rocky Intertidal

839[203]	Re: other spills: "... demonstrate that immediate catastrophic and later chronic effects can result from a single oil spill."
840[204]	"Comparison of pre-oil and post-oil transect counts showed that there was a significant decrease in marine life after the oil spill on the reef (San Francisco spill)."
844 [205]	"In the event of a major spill beach communities may be expected to suffer considerable localized damage." "... severe or chronic alteration of comparable areas of the environment could eliminate endemic species forever. It is conceivable that a large spill could eliminate a sensitive rare endemic with a restricted geographical range from the Bight area."

Page Comment

- 846[206] " ... severe damage to a seaweed population could occur if seawater were polluted with oil during the time of year when gametes were released." Commercial kelp Macrocystis could be impacted.
- 848[207] Sandy beaches " ... have not been as extensively studied in relation to oil and oil spills." They represent an important tourist attraction.
- 855[208] In the Dana Point-San Diego area "The probability of oil reaching the mainland coast given that a spill occurs, is relatively high, varying from 27 percent ... to 58 percent"
- 856[209] Re: cleanup: "The oil containment group responsible for oil spills south of Point Dume is SC-PCO which is rather new and less experienced than its counterpart in the north"
- 861[210] Summary: "Biological recovery will take up to 5 years, while community stature recovery will take up to 10 years." According to Ref. 8 these figures may be low. "The effects of chronic long-term oil pollution on intertidal communities is not known."

Nekton

- 862[211] Re impacts: "Whether such impacts would be widespread or localized would be difficult, if at all possible to predict at this time." Considering importance of nekton (free-swimming fish, their eggs and larvae), more research should be required.
- 863[212] "However, analysis of the entire spectrum of formation water components and the effects of chronic discharges upon fish and nekton of Southern California has not been done." Same paragraph (2), DES claims with absolutely no basis that " ... no overall adverse effects upon nektonic populations may be expected as a result of proposed action."
- 864[213] "Little information is available on the effect of spilled oil on members of the nekton other than fish." Oil kills fish eggs and larvae.
- 865[214] Re: Dana Point-San Diego: "Unfortunately, adequate data upon which to predict such impacts [oil] is not currently available."
- "Probably a more serious consequence would occur from chronic impacts within an, as yet undeveloped, 'frontier' area [SD]."

<u>Page</u>	<u>Comment</u>
867[215]	Re: Cumulative impacts: "Whether they affect nekton significantly, will only be determined with close monitoring."
969-71 [216]	The military concurrence with the leasing program noted here should be examined further, to determine impacts on the San Diego region economy in the event of disruption of military operations.
1005 [217]	The line of argument which presents the positive values of the drilling platform structures as aids to navigation is an inappropriate use of the DES. Nowhere in the DES is the need for additional navigational aids discussed. It is quite possible that none is needed, and that such structures would be a <u>hazard</u> to navigation. The cost of such structures -- approximately \$30 million apiece -- raises the question of the cost-effectiveness of such structures in that role. In any case, the DES is not about aids to navigation: it is about off-shore drilling, and the DES authors should not yield to the temptation of "clutching at straws" to justify their project.
1009- 1010 [218]	Further needs to be discussed about the psychological impacts of a spill. If the authors had acknowledged the vulnerability of the San Diego region to ocean related disasters, due to the highly dependent nature of its industry base on the ocean, then they could have discussed the scenario which starts with an oil spill, then discussed the adverse publicity of the region, leading to reduced tourism, recreation and fishing, spin-off impacts on the rest of the tourist industry, including the airlines, all leading to lowered incomes and employment, and then to the longer range effects of fewer industries seeking relocations here due to the deterioration of the environment. Since the researchers have basically treated San Diego as another "LA" -- a microcosm -- they consequently do not reflect any differences in potential adverse impacts.
1009 [219]	What is the source of the statement: "It is doubtful that spilled oil would penetrate very far into the [Mission] bay if at all"?
1009- 1010 [220]	The discussion regarding the "extreme vulnerability" of big fish due to a major spill illustrates the contextual bias of the report. Even this severe impact is only briefly discussed, and thus downplayed. Compare this discussion to the exhaustive discussion regarding the need for OCS oil under energy alternatives (pp. 1378-1403).
1010 [221]	More discussion of Tanner-Cortes towers being useful as navigation aids.

Page	Comment
1012 [222]	Report needs to discuss the impacts of day-to-day operational spills on coastal resources. For example, what effects can be expected from a 500-gallon spill, not considered to be major?
1023 [223]	What is the source of the "location" of the OCS platforms? Are these locations already finalized by BLM, prior to the approval of a DES on the Lease Sale? or are these locations merely for "sake of argument"? If the latter (or former, for that matter) what criteria used at this early time to select the locations?
1041 [224]	We do not understand the decrease in San Diego population of 574, or the decrease in number of dwelling units by 217.
1147 [225]	Solid waste landfills. Current capacities and life-spans need to be included.
1160- 63 [226]	Understates the impact of oil spills on the tourism-recreation part of the region's economy.
1163 [227]	Discussion is that a spill impacting coastal areas in Segments 23 and 53 will result in the loss of 283,700 visitor-days. Not only does this conflict with other DES statements that risks and impacts on Dana Point- San Diego segments will be minimal, but also raises serious questions about the oil spill model itself, since these segments are far removed from the spill points in San Pedro and Santa Barbara.
1178 [228]	Visual impact termed to be "minimal." That is a matter of personal opinion and should be stated as such.
1197 [229]	More refined analysis of the San Diego region economy (as we suggest be done) might show different employment impacts.
1211- 13 [230]	Figures should be adjusted in light of page 13 and related actions.
1223- 61 [231]	This section should be augmented by information from 9/78 OCS Lands Act Amendments.
1277 [232]	Under "predicted oil spills," we do not understand how the Dana Point-San Diego area can be allocated "1%" of all the major spills projected. How can an area have only 1% of <u>major</u> spill? Where is the remaining 99% of

that same major spill? The number may be statistically correct, but it doesn't make sense in a real world situation.

1278 The report cites that uncompensated commercial fishing
[233] losses could occur for a "substantial" amount of time.
What is meant by the word "substantial"?

1279 Similarly, the report states that sportsfisheries will
[234] be "temporarily discontinued," but that time period is
not given.

1286 Cultural Resources: On-shore support facilities are not
[235] located, even in general area terms. This could have
been done easily.

1281 The discussion regarding the "destruction of historic
[236] structures," in view of the criticism immediately above,
is nothing more than boilerplate filler material. Project
is not specific enough to conclusion that some structures
might be lost. The DES could be tightened up considerably
by disposing of this and other "boilerplate" statements,
which may be required by departmental requirements, but
not by the known facts.

1282- The statements on these pages regarding impacts on harbors,
83 [237] especially regarding esthetics, boating disruption, and
closure of the main Bay, are candid and valuable in eval-
uating the project.

The dollar value of a visitor-day of \$4.00 must be ques-
tioned. San Diego Con-Vis data put the figure at closer
to \$20.00 per day. Potential economic impacts on San
Diego accordingly must all be revised upward, five-fold.

Recreation impacts for the San Diego region should be
documented, for even though risk of loss may be low,
impact and irreversibility of loss may be high -- for
this region.

1288 The following catch-all phrase should be deleted. It
does nothing for the usefulness of this DES:

[238] "The long-term land use conflicts which could result
from this sale will probably be resolved through the
exercise of existing regulations and controls; the State
Coastal Zone Management Plan; or local coastal plans as
they are completed and improved."

1289 More boiler plate, probably required by statute, but in
[239] this case impossible to measure and meaningless. This
is the discussion regarding the relationship between

Page	Comment
	the crime rate and OCS drilling. If there is any causal relationship, no one will be able to tell.
1289 [240]	Budget levels of Coastal Energy Impact Fund should be noted.
1290 [241]	Impact on the San Diego region of loss of affected military operations should be analyzed.
1317 [242]	More report bias: "Since the number of wells projected for this [Dana Point-San Diego] area and the expected number of spills are so low, elimination of these areas may not be extremely significant to the ecology." This conclusion suggests BLM will go through with the sale regardless of risk, even though their report does not even acknowledge, much less understand the vulnerability of San Diego to an oceanic disaster. And the above statement could just as easily be argued: "Since the number of wells projected for this area is so low, elimination of these areas may not be extremely important to the success of the overall sale." Our point is here: to delete the statement entirely.
1336 [243]	Last paragraph -- unclear which population change figure applies to San Diego region.
1377 [244]	Last paragraph -- understates feasibility of application of alternate energy strategies, including conservation.
1377 [245]	Discussion here of the need for OCS oil shows sponsorship of the report, and the dissemination of Policy Judgments which should be reserved to the Secretary of Interior. The discussion also discussed only the negative impacts of deleting the Lease Sale. It does not mention also that 14 major spills, 2-3 accidental deaths, 947 injuries and untold millions of dollars of economic loss would also be avoided if the Sale did not occur.
1378- 1402	Shows bias throughout this section for OCS oil production. This is not the purpose of this document.
[246]	This section of the report also appears to be using outdated (1975) information, which understates feasibility of alternate energy sources. More recent analyses and their findings should be added to present an accurate picture.

POCS Reference Paper IV

Page Comment

- [247] General -- Richardson - Gordon, or other similar techniques (e.g., Emmerson's DEFM '78 model) should be applied to detailed analysis of San Diego economic impacts, as was done with Los Angeles County and Orange County impacts.
- iii [248] Need citation, Journal of Economic Literature.
- 120-21, Comments here on weaknesses of Harris model underline need
134 [249] for separate and detailed San Diego County analysis.

Appendix V

Specific Comments on the Effects of Formation Waters and Drilling Muds

by Douglas Diener, Ph.D.

A. DRILLING MUDS

<u>Page</u>	<u>Comment</u>
[250] 790	One million barrels of drill cuttings and 450,000 barrels of drilling muds are predicted from 701 production wells and 71 delineation wells over 21 years of Lease Sale #48 development and production. In addition, a total of 1,254 wells are predicted to be drilled or developed in the near future in Lease Sale #35 tracts, plus hundreds more in the pre-existing Santa Barbara area lease tracts and in State-controlled tracts. The cumulative impacts of the total volumes of mud and cuttings are not analyzed. The number of barrels of mud is not very useful information from a biological viewpoint; areas to be covered and to what depths are important, as are composition of the materials, toxic components, locations of discharges, and degree of dispersal into advective flow of surface waters, midwaters, and bottom waters.
[251] 824	Barium compounds (used in muds) have a severe almost sterilizing effect on plant and animal life (EPA 1972).
[252] 825	Chromium compounds are toxic and adsorb onto clays and <u>barite</u> . Thus they become incorporated into sediments and could be ingested by benthic deposit feeders and enter the food chain.
[253] 863	Effects of drilling muds on nekton of the area have yet to be conclusively demonstrated.
[254] 957	Barium, chromium, lead and water quality disturbed at least 1000 m away from drill site.
[255] 958	<u>Siltation effects</u> on the corals on Tanner and Cortes banks are <u>not</u> considered. Saltation is known to kill corals.

B. DISCHARGE OF FORMATION WATER (F H₂O, also called oil field brine)

[256] 631	Using the UCLA (1976) rule of thumb (a 1:1 ratio) would increase the estimates of F H ₂ O to be discharged (p. 624) by a factor of five. Based on 48 mg/l of oil per liter of F H ₂ O for the Dana Point-San Diego area one barrel of F H ₂ O for each barrel of oil this equals 252 tons total of oil slowly released in the area.
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- | | <u>Page</u> | <u>Comment</u> | | | | | | | | | | | | | | | | | | | | | |
|----------|----------------------|--|--|--|---------------------------------|---------|--|--|---------|----------|---------|----------|---------|---------|--------|---------|---------|------|------------|---------|---------|-----------|---------|
| [257] | 636 | "Based on a small amount of data, the oil field brines (F H ₂ O) of the California coastal region range from 22 ppt to 40 ppt mineral salts." There should be more specific information on this to indicate densities of discharged waters in various areas, and hence the lateral flow disposition of the waters. | | | | | | | | | | | | | | | | | | | | | |
| [258] | 636 | Amounts of chemicals discharged from F H ₂ O are underestimated in Table III A-13 because they are based on estimates in Table III A-1 through Table III A-6 (see p. 631). | | | | | | | | | | | | | | | | | | | | | |
| [259] | 637-39 | Based upon these data, F H ₂ O contains <table border="1"> <thead> <tr> <th></th> <th></th> <th>3 - 26 times that of salt water</th> </tr> </thead> <tbody> <tr> <td>Arsenic</td> <td></td> <td></td> </tr> <tr> <td>Cadmium</td> <td>181-1636</td> <td>" " " "</td> </tr> <tr> <td>Chromium</td> <td>400-800</td> <td>" " " "</td> </tr> <tr> <td>Copper</td> <td>16.6-38</td> <td>" " " "</td> </tr> <tr> <td>Lead</td> <td>up to 9333</td> <td>" " " "</td> </tr> <tr> <td>Mercury</td> <td>16.6-66.6</td> <td>" " " "</td> </tr> </tbody> </table> <p>(Ref. E. Goldberg, 1963, The Oceans as a Chemical System. In "The Sea," Vol. 2, Ch. 1, p. 3-25.)</p> | | | 3 - 26 times that of salt water | Arsenic | | | Cadmium | 181-1636 | " " " " | Chromium | 400-800 | " " " " | Copper | 16.6-38 | " " " " | Lead | up to 9333 | " " " " | Mercury | 16.6-66.6 | " " " " |
| | | 3 - 26 times that of salt water | | | | | | | | | | | | | | | | | | | | | |
| Arsenic | | | | | | | | | | | | | | | | | | | | | | | |
| Cadmium | 181-1636 | " " " " | | | | | | | | | | | | | | | | | | | | | |
| Chromium | 400-800 | " " " " | | | | | | | | | | | | | | | | | | | | | |
| Copper | 16.6-38 | " " " " | | | | | | | | | | | | | | | | | | | | | |
| Lead | up to 9333 | " " " " | | | | | | | | | | | | | | | | | | | | | |
| Mercury | 16.6-66.6 | " " " " | | | | | | | | | | | | | | | | | | | | | |
| [260] | 631 & 638
(table) | Oil and grease in F H ₂ O exceeds EPA discharge standards. | | | | | | | | | | | | | | | | | | | | | |
| [261] | 671 | Formation waters from development within State tidelands have not been analyzed. | | | | | | | | | | | | | | | | | | | | | |
| [262] | 790 | 139 X 10 ⁶ barrels for formation water -- inconsistent with figures given on p. 631. | | | | | | | | | | | | | | | | | | | | | |
| [263] | 790 | Estimated 1241 - 1664 metric tons of oil and grease discharged slowly from formation water. Since these figures are underestimated the actual projected figures should be 7053 - 9457 metric tons released just from formation water discharge. | | | | | | | | | | | | | | | | | | | | | |
| [264] | 791 | F H ₂ O can be dense and thus will sink. | | | | | | | | | | | | | | | | | | | | | |
| [265] | 811 | F H ₂ O denser than seawater. This indicates that all those heavy metals in F H ₂ O could sink with the water to the bottom and be incorporated into benthic food webs. | | | | | | | | | | | | | | | | | | | | | |
| [266] | 863 | SCCWRP has examined effects of several of the various heavy metal organisms of the Southern California area. <u>However</u> , analysis of the entire spectrum of F H ₂ O | | | | | | | | | | | | | | | | | | | | | |

Page

Comment

components and the effect of chronic discharges upon the fish and nekton of Southern California have not been done.

[267] 949

Once proven resource production starts, F H₂O will be discharged into the ocean water. The discharge of these waters into the ocean will alter the chemical constituents of ocean waters, etc. (p. 959).

[268] 961

Prior to formation water being diluted to "non-pollutant" levels the effect the formation water has on the environment is unknown.

[269] 962

Discharged F H₂O will add additional pollution to the SCB.

[270] 961

The fate of the discharged formation water is impossible to predict. This is especially true considering how little is known about the composition of these waters for this area. This is of extreme importance since it is known that other pollutants have been shown to accumulate rapidly in the basins of SCB.

Responses To:

Comprehensive Planning Organization of the San Diego Region

- [1] The data used in the EIS is the best available at this time.
- [2]
 - (1) The impact analysis is based on the most probable estimates. Minimum resource estimates and maximum resource estimates are also discussed in Sections III.F.1 and 2.
 - (2) A section on oil dispersion is included in Section III.A.b.ii, Fate of Oil in the Marine Environment.
 - (3) The best available data at the writing of the EIS has been used.
- [3] Studies are planned to continue in the Bight area throughout the possible development period.
- [4] The level of analysis is dependent on the anticipated impacts in an area.
- [5] The EIS does not advocate UCS development, it analyzes the impacts of possible development both positive and negative on the environment.
- [6] The entire DES is stored on magnetic cards and changes can be made where appropriate with relative ease.
- [7] Neither current CEQ Guidelines nor NEPA mention a Summary Report as a requirement. It is, rather, a matter of policy. It is both BLM and Department of Interior policy not to write an Executive Summary.
- [8-9] The resource estimates provided by the U.S. Geological Survey are based on the best available data. Some of this data cannot be released because it is proprietary and the USGS is required by law not to release it. Departmental policy also precludes the release of this information.
- [10] Average conditions of current flow may or may not exist at the time of a spill. Section II.C.2.a states that the circulation description within the borderland was gathered over a short time period and thus does not provide long-term trends for the currents.
- [11] Section III.A.4.a.v points out while there has never been an offshore accident (oil and gas) in Southern California attributable to natural phenomena, there is a remote possibility of such an event happening.
- [12] Comment noted.

- [13] The oil spill model used in this report only looks at surface movement.
- [14] No reliability statistics exist for the information used in the oil spill model.
- [15] Subsurface current and bottom circulation are discussed in Section II.C.2.b and II.C.2.c respectively.
- [16] Formation water discharged into marine waters is discussed in Section III.C.2. No studies have been identified that discuss formation water dispersion.
- [17] Section III.C.2 points out that mud and associated drill cuttings settle to the ocean floor and may eventually be transported to deep ocean floor or basins.
- [18-23] We feel the ES is adequate as the best available information was used in accordance with the guidelines set forth by NEPA.
- [24] San Diego's natural amenities are pointed out in Section II.G.1.f, Recreation and Allied Resources.
- [25] Fiscal impacts have been revised to take Proposition 13 into account.
- [26-27] Given the small direct employment increase of only 203 in 1984 (Table III.E.15.a-2), the refinement of San Diego County into sub-county areas, as was done for Los Angeles and Orange Counties, would not be meaningful, according to our contractors Professors Richardson and Gordon of USC.
- [28] The information used in the ES was the most recent available when the statement was being prepared and is used to illustrate trends which are continuing today.
- [29] The discussion in Section V.L of the ES is relative to either local residents or visitors who choose an alternative recreational pursuit because of an oil spill. The \$4.00 value is not intended to portray the value of a tourist's daily expenditure. A clarification has been added.
- The descriptive sections on recreation in San Diego County, in Section II.G.E.i., have been augmented to include more tourist data. The remaining comments concerning international tourism and tourist's perceptions of an area are addressed in the response to Comment No. [218] below.
- [30] The military population of the county is shown in Table II.G.2.a-4.

- [31] The deletion of the 26 tracts could result in a reduction of Gross Regional Product of \$26 million during the peak year of 1985.
- [32] Comment noted.
- [33] Section VIII.C.1.a states that energy conservation in some sections of the economy could result in energy savings of between 10 and 30 percent and that good conservation practices could reduce petroleum demand by as much as 2.2 million barrels per day by 1985. Peak production from this proposed sale is projected to be 216 thousand barrels per day.
- [34] The geological description is a summary of the literature. The reader is directed to other more detailed material in the text and the bibliography.
- [35] Industry nominated the entire coastal area of San Diego County, Figure I.B.2-1. Each and every gas and oil potential in the OCS is important to U.S. needs as long as it can be developed safely and economically.
- [36] The Geological Survey is required by law in some cases and Departmental policy in others to keep all proprietary information confidential.
- [37] As stated in Section I.B.4, only those tracts designated 1 or 2 were recommended for tract selection.
- [38] The ES is not a justification document but only an analysis of potential impacts if the proposed lease sale were held and an analysis of alternative actions that could be taken to obtain comparable energy resources.
- [39] If a sale were held and development were to take place, a detailed geophysical survey would be conducted on each site of operations before activity were allowed to take place. Geologic hazards are continuously being assessed as new information becomes available.
- [40-47] The comments in this section combined with those contained in Appendices II and III go along with the basic concepts of the Department of the Interior Oil Spill Risk Analysis Model but points out the need for a far more detailed analysis. Proposed Sale 48 covers a wide area from Point Conception to the Mexican Border. It was an analysis of the drift bottle data referred to in Appendix II that pointed out the need to run trajectories from Point Reyes down to Scammons Lagoon. Detailed models such as the one developed by Ron Kolpack at the University of Southern California do exist. This model uses over 50 different parameters and 34 different processes. It is a three-dimensional model and requires large computer for analysis of a few square miles of ocean. This type of

analysis is impractical for an OCS sale. By the same token, the modeling referred to in the State OPR report is a much simpler model and does not provide the reliability or data that the DOI model does. During OCS modeling of other sales (East Coast), when spills occurred, they were predicted using the DOI model and the results correlated closely with the monitored trajectory.

All available applicable wind data was analyzed including weather buoys, ship synoptic data (SSMO), and various island and shore stations. The data selected is the most representative which exists in a form that the DOI model can use. This type of highly specialized data and analysis is available to the public at the BLM library in Los Angeles.

The major effects of an oil spill occur on the surface of the water and for this reason most models available are two-dimensional. While a portion of the oil will sink or enter the water column during a spill, data is lacking on both the amount and nature of oil that is thus effected in addition to a lack of detailed data on the velocity, direction and character of sub-surface currents. Efforts to monitor oil entering the water column during major spills, such as the ARGO MERCHANT, have failed to indicate any measurable environmental damage. The oil has just disappeared.

Modeling extreme events can be just as misleading as modeling dead calm. It is for this reason that the various ranges are programmed and the Monte Carlo random sampling technique employed. During the modeling runs, potential spills from a particular location were run and results compared after 100, 200, 300 spills, etc. Statistical reliability was not achieved until after 400 spills were simulated. This was the reason for selecting 500 spills from each launch site.

- [48] Section III.C.2 points out that mud and associated drill cuttings settle to the ocean floor and may eventually be transported to the deep ocean floor or basin. Section III.C.2 also discusses the possibility of fate and effect of formation water on the marine environment. This information is based on the best available data and the most probable impact.
- [49] Concerning the oil spill risks analysis assumptions, wave induced currents are considered negligible and are thus not necessary in developing an oil spill model.
- [50-55] Comments of the general ecology of the area and ocean noted.
- [56] There is much literature which allows general predictions of acute impact in the event of a spill. Preliminary findings in the Gulf of Mexico suggest long term impacts are minor.

- [57] Comment noted.
- [58] Similarities and differences of habitats within SCB and other areas are pointed out throughout the impact sections. Data used in the ES is adequate for impact assessment. Original data is available at the BLM POCS Office Library and through National Technical Information Service.
- [59] Due to the many variables possible in an oil spill (See Table III.C.1-1 of the ES), the quantitative predictions requested would be difficult and beyond the scope of this statement.
- [60] Comment noted.
- [61] The probability of oil being spilled and reaching this area is very low: 5 percent within 3 days. This does not take into consideration clean up capabilities. Therefore, the chance of oil contaminating these areas as a result of this proposed sale seems extremely unlikely.
- [62] The inference that the rocky intertidal study concentrated on algae at the expense of invertebrates is false. The method used emphasized macroflora and macrofauna and several biological parameters to measure the communities. Microfauna were not included for all vertical zones of the intertidal during the first year, but were intensely examined in the mussel assemblage. POCS Reference Paper No. III, which discusses screen sizes and the limitations of comparing studies where different screen sizes were used, as well as the intertidal studies, provide additional information. It is correct that when using 1mm mesh (BLM study) or 0.7mm mesh (Allan Hancock Study 1965) microfauna pass through and are not included.
- [63] Comment noted.
- [64-65] To logically assess the impacts of a project like oil and gas operations in an area, the baseline must first be examined. If we wait until operations begin and compare areas having activity with a control area, we run the risk of sampling slightly different habitats, as suggested in CPO Comment No. [57] above. This procedure has merit but, as in the case of all studies, has weaknesses.
- [66-67] The National Academy of Sciences (NAS), under contract with BLM, reviewed BLM's Studies Program. BLM has modified the Studies Program to reflect the conclusions of the NAS report.
- [68] Chronic long-term impacts are mentioned and discussed several times in Section III.C.1.a.i, Impacts as Phytoplankton. It is also recognized and noted that these effects are unknown at this time. Although there are some results of chronic long-term experiments reported from the literature, especially

for hydrocarbon effects, BLM recognizes that predicting long-term impacts on plankton populations in the marine environment is difficult and complex and therefore has stated that these impacts are unknown. Additions have been made in the text to further clarify that chronic long-term effects are unknown. Section III.C.1.k discusses some long-term effects on the marine food web.

- [69] Long-term turbidity effects are recognized as unknown for phytoplankton populations. Turbidity impacts from drill muds and cuttings are discussed in Section III.C.1.a.i of the ES for phytoplankton populations.

BLM agrees that effects decreasing the long-term phytoplankton productivity could affect higher food chain levels. However, although long-term effects from turbidity are unknown, the few investigations to date conducted in the Gulf of Mexico where OCS operations have been conducted for more than 20 years indicate that there are no noticeable differences in phytoplankton productivity between areas where drilling has occurred and areas free of drilling.

- [70] The text has been changed in the summary for Section III.C.1.a.i to clarify that the impacts would probably not be significant in the short-term, but are unknown for the long-term. The introduction to the Impacts on Phytoplankton section openly states and recognizes the limitations and assumptions for this impact analysis. Estimates of impact severity were based on the best available data.

- [71] The results of the CEPEX experiments were considered but results to date have not added appreciably to impacts already known for phytoplankton species. Section III.C.1.a.i mentions that hydrocarbons can have lethal, sub-lethal, or enhancement effects on phytoplankton, depending on several factors including species type, hydrocarbon concentrating mixing rates, etc. BLM agrees that the CEPEX work has potential for analyzing pollutant effects in a field environment.

- [72] In Section II.E.2 of the ES, the statement made referring to nearshore species not representing a significant proportion of the total zooplankton biomass in the California Current, refers to the previous sentence. The sentence has been changed to clarify the statement.

- [73] The submitted figure and information on the Southern California Eddy have been added to Section II.E.2. The implications of pollutants recirculating in the Bight were added in Section III.C.1.a.ii.

- [74] BLM agrees that predicting impacts in the marine environment is a complex and uncertain task. Especially for long-term impacts, the impact analysis openly states that many effects are unknown.
- [75] Comment noted.
- [76] Certain important meiofauna species are passed through a 1.5mm mesh screen. We thank Dr. Parr for supplying us with the names of some of the more important meiofaunal species we would expect to find on sandy beaches. The ES has been amended to incorporate this information.
- [77] Comment noted. Sandy beaches were screened with a 1.5mm mesh while subtidal organisms were screened with a 1.00mm mesh.
- [78-82] Comments noted.
- [83] See response [62] above.
- [84-86] Comment noted. The most probable result is summarized in the ES (Section II.G.b.ii).
- [87] Comment noted.
- [88] Comment noted. This problem has been addressed in Sections III.C.7 and 8 on commercial and sport fisheries.
- [89] The possible impacts of oil development on fish larvae survival have been addressed in Section III.C.1.a of the ES. While it is agreed that a major oil spill may pose the greatest threat to fish eggs and larvae, a certain amount of caution must be exercised before conclusive statements about impacts can be made. In a review of pollution impacts on fish eggs by A. Crosby Largwell (Oceanus, Vol. 20 No. 4, Fall 1977 pp. 46-58) he states that "Generally, little is known about the factors in nature that control the mortality of fish eggs and larvae." And that "A greater knowledge of the effects of marine pollution (including oil) depends heavily on a fuller understanding of the natural mortality process of fish eggs and larvae." It is certainly hoped that efforts are continued by all parties concerned with marine pollution to bring about a clear understanding of "natural mortality" of fish eggs and larvae so that a more correct assessment of the impact of oil development on them can eventually come about.
- [90] Comment noted.
- [91] Comment noted. The quoted statements appear to be taken out of context and do not occur in the ES as stated.
- [92] Comment noted.

- [93] Thank you for the fine summary of the marine bacteria in worst case scenario by Dr. Eric Hartwig. We should point out, however, that experimental evidence does not indicate food chain magnification of petroleum hydrocarbon as suggested by Dr. Hartwig.
- [94] We have had consultation with NMFS in July. Their opinion is presented in Section IX.C.
- [95] The Food Web section was condensed from a larger paper prepared in this office and updated periodically. It's entire contents can be seen in OCS Sale No. 42 EIS Appendix and is available in this office.
- [96] Carcinogenicity is discussed in Section III.C.1.k, Impact on the Marine Food Web.
- [97-98] Comment noted.
- [99-102] The comments are appreciated and appropriate. ES Sections have been changed to reflect needed corrections. It is assumed that these comments are based on Section III.C.2. The purpose of the water quality impact section is to estimate how the water quality might deviate from ambient condition if drilling and oil and gas production commenced. Most biological impacts that were pointed out in this comment were discussed in ES Sections III.C.1.a. through III.C.1.b.
- [103] The San Diego area is similar to the Santa Barbara area. Tourism and ocean research in that area have continued along with offshore oil and gas development.
- [104] Thank you.
- [105] Fiscal impacts have been recalculated in Table III.E.15.C-2 and 3.
- [106-107] There is no evidence in the Santa Barbara County area that suggests that oil and gas development has resulted in a decline in tourism. Also, the Harris Model indicates that tourist industry groupings (87) amusements and recreation and (96) eating and drinking places will be positively impacted by as much as \$500,000 and 57 new jobs during the peak year of 1986 (POCS Reference Pages No. IV, Table IV-28 and 29).
- [108] The Harris Model is a county model. Nowhere in our analysis was San Diego County lumped together with any region or any other county. All Harris Model inputs and outputs are made on a county by county and year by year basis (See POCS Reference Paper No. IV pages 46, 47, 48).
- [109] The tourist-related industries in San Diego County are projected to expand with development.

- [110] Gordon and Richardson felt that the small increase of direct employment projected for San Diego County would make a sub-county analysis meaningless.
- [111] The Pacific OCS Office was in contact with CPO and San Diego County economists before the economic analysis with the Harris Model was undertaken. It was concluded by both CPO and San Diego County economists that the San Diego Model could not be effectively used since coefficients for oil and gas development related industries are not in the model. It was agreed that the Harris Model would be more appropriate. The meeting was held April 11, 1977.
- [112] Military conflicts were discussed with the Department of Defense and resolved during tract selection.
- [113-
114] Many ocean research firms and institutions in Southern California have been involved with BLM's studies program and will probably be involved in such efforts in the future.
- [115] The data used in the preparation of the ES was the best available at the time and was used to illustrate a trend which is continuing to the present. The value quoted for the San Diego landings alone during 1976 is not comparable to the values used in the ES. The values in the ES represent the prices paid to the fishermen and are based on records of the California Department of Fish and Game.
- [116-
117] Refer to response [29] above.
- [118-
119] The military employment figures have been added to Table II.G.2-b-5.
- [120-
121] Thank You.
- [122-
125] Comments noted.
- [126-
128] We agree that solar energy could supply significant amounts of energy within the next 10 to 15 years as stated in Section VIII.D.7. References have been added as indicated in your comment.

Responses To:

Comprehensive Planning Organization of the San Diego Region
Appendix III

- [129] This section is an historical account of the tract selection process. Detailed analysis of DOD conflicts is described in Section III.C.4 and commercial fishing impacts are discussed in Section III.C.7.
- [130] Status has been updated.
- [131] Depicted on the map are 100 Fathom isobaths and arrows showing circulation at the 100 meter depth.
- [132] According to the ocean surface currents and the oil spill trajectory model, there is some probability that oil spills from Sale 48 lease tracts could reach central California. Also, according to the most likely development scenario, some oil production will be tankered to San Francisco for processing.
- [133] Sources referenced in the table defined "area of leasing influence."
- [134] This section is a description of the area. For impacts on military operations refer to Section III.C.4.
- [135] This has been done to the extent that data are available.
- [136] The staff has researched the region's recreational attributes both in the field and in the literature and finds that the locally produced material adequately sums up both the quality and the area's attitude toward the environment.
- [137] Although there is a close tie between San Diego tourism and that of Baja California, particularly northern Baja, the chance of an oil spill occurring and contacting Baja beaches is remote as predicted by the oil spill model. Beach recreation is not a major factor in across the border tourism and therefore, a detailed discussion and analysis would not be valuable.
- [138] The discussion on San Diego County is separate from any regional discussion.
- [139] Military employment has been added.
- [140] United California Bank, Forecast 1977. Source has been added.

- [141] The section has been rewritten to reflect Proposition 13.
- [142] The values used in the ES represent the prices paid to the fishermen (assessed) and are based on California Department of Fish and Game records. These data were also used to illustrate a trend in the value of commercial fish landings which continues today. The total value given in the Economic Profile of \$271 million for 1976 is a total estimate of direct and indirect values. This figure represents a value of more than 6 times the actual assessed value reported for 1976 (\$44.7 million) and was determined by using a multiplier which may or may not represent an adequate assessment of the difference in prices paid to the fishermen and the ultimate retail values. In addition, these values include the values recorded for landings of the tropical tuna fleet fishing for yellowfin, shipjack, etc, which are not caught in U.S. waters or even close to the San Diego Area but are often caught off the shores of South America or Africa. If the values that these fisheries represent were subtracted from the San Diego landings a figure closer to \$6 million may be reached for San Diego landings from California waters which in turn may represent only \$36 million if a multiplier of 6.0 is applied. The point is that although a significant "local" fishing industry occurs in the San Diego area, as is indicated in Figure II.G.2.d.i-4, a value of \$271 million or even \$44.7 million may rather dramatically overstate the value of this industry.
- [143] The Outer Continental Shelf Lands Act Amendments of 1978 provides a \$200,000,000 Offshore Oil Spill Pollution Fund to reimburse any losses suffered due to an oil spill.
- [144] Table III.A.2-1 shows the estimated length of pipeline that would be buried, while Table III.A.3-1 reflects the estimated total length of pipeline including gathering lines, etc.
- [145] Near the producing platform(s).
- [146] As noted in the ES.
- [147] As noted in the ES.
- [148] No comment required.
- [149] Average figures are used in the ES wherever possible to simplify an already complicated analysis. The discussion of the 53,000 barrel spill is intended to qualify and give a feel for the numbers that are used.
- [150] It is not anticipated that any oil will be tankered to San Diego.
- [151] No comment required.

- [152] Figure III.A.4.a.iii-3 indicates possible means of transporting oil ashore, while Table III.A.3-1 reflects gathering lines that might be required to get oil to a point ready for transport.
- [153] Table III.A.4.iii-3 shows an expected number of spills of 0.12 for the Dana Point - San Diego to Long Beach tankering. Table III.A.4.a.ii-1 shows the same number but also shows .05 attributed to platform activity for a cumulative effect of 0.17.
- [154] This table (III.A.4.a.iii-5) shows oil spill probability estimated for tanker transportation and therefore does not include pipeline breaks and leaks.
- [155] The prediction is based on the fact that in Southern California there are more earthquakes than there are tsunamis. There has never been an oil spill attributable to either in United States OCS waters.
- [156] If a spill gets close to shore, the model registers a hit to compensate for the reduced accuracy close to shore. The model does treat cumulative effects and is worst case in the sense that projections are based on the expected value of oil being processed. Effects of the future beyond Sale 48 cannot be projected as structure information is not available.
- [157] Comment noted.
- [158] Does not require comment.
- [159] Carcinogenic and other effects cannot be predicted absolutely, particularly when you combine the tens of thousands of chemicals contained in petroleum with the tens of thousands of possible species that could be affected in a constantly changing medium which, in itself, is not completely understood.
- [160] Exerpts from the NAS report were provided as basic background material in helping the layman understand the nature of oil as it relates to oil spills. For the purpose of analysis, all available information is constantly analyzed.
- [161] Requires no comment.
- [162] Unless specific organisms or ecosystems are being addressed, a general statement is required. The statement relates to San Diego. If a major oil spill reaches shore, it could possibly take some organisms several months to a few years to repopulate to a pre-spill condition.
- [163] No comment required.

- [164] The inference is that it would take several years.
- [165] See response [159] above.
- [166] The ability to deploy oil spill containment equipment between a spill in OCS waters and shore is based on a careful analysis of available equipment, deployment of existing equipment and the probable speed of a spill. The statement that "an oil recovery effort may not be able to prevent all oil from impacting a beach" is recognizing that weather or other conditions may at times thwart recovery attempts.
- The reviewer's reference that dispersants can cause more damage than an oil spill itself probably refers to situations like the Torrey Canyon spill in which detergents were used. Modern dispersants are being shown to be no more toxic than the dispersed oil by itself and are being closely tested and monitored by the EPA.
- [167] Companies dealing in or "controlling" oil booms have periodic drills, etc. Storms reduce the efficiency of oil booms.
- [168] Impacts on high intensity use beaches, major commercial ports, marinas and harbors, recreational boating areas, etc. are evaluated. Tourism and military impacts are evaluated in other areas.
- [168a] Correction made.
- [169] Based on best available information, cost for the indicated numbers of deaths and injuries are not available.
- [170] Comment noted.
- [171] Drilling muds have been shown to be relatively non-toxic and are produced in relatively small amounts. The smothering impact from pipeline burial is predicted to be relatively small, about 30m diameter. Predictions of chronic effects are beyond our present predictive capabilities.
- [172] The terms "minor," "immeasurable," etc. used in the text have been qualified with "probably" and the phrase added that the chronic, long-term effects are unknown at this time. BLM agrees that the terms as used are not quantifiable, but they are used qualitatively in an attempt to represent the relative severity of various impacts discussed. These judgements are based on the best available results from field and lab studies.

- [173] BLM agrees that the impacts of oil spills in the open ocean environment are not well known as yet and require further study. The term "limited number" was used here to point out to the reader that the studies conducted to date are not conclusive.
- [174] This opinion by Connell (1973) was cited to show that Stronghorn's results were not viewed as conclusive by some scientists.
- [175] This statement has been qualified to say "probably insignificant." This conclusion is based on the most probable development scenario indicating low amounts of discharges for the Dana Point - San Diego area. Only 10 exploratory wells and 24 development wells are projected for the whole area. The impact discussion earlier states that impacts on phytoplankton populations from platform and rig changes are mainly localized around the structures. These are conclusions to date of studies conducted in the Gulf of Mexico and Southern California.
- [176] According to the results of the oil spill trajectory model used for the impact analysis, most spill trajectories remained offshore. The statement in the text is that "any spills reaching the waters off Baja...should generally remain offshore..."
- The text has been changed to state "probably not significant in the short-term. As previously stated, chronic long-term impacts are unknown." This conclusion is based on the most probable development scenario for this proposal, the results of the oil spill trajectory model and the best available impact data.
- [177] The major increase impacts to the phytoplankton populations have been summarized in the previous paragraph and discussed in some detail throughout the entire chapter.
- [178] Corrections made in the text.
- [179] The first statement qualifies the entire analysis in this chapter. The second statement has been qualified in the text.
- [180] Although there are recognized differences between the Gulf of Mexico and the Southern California Bight, the information about dispersed patterns is valuable for setting limits for various current patterns.
- [181] This statement has been qualified in the text. Cumulative effects are discussed later in the chapter.
- [182] This statement has been qualified in the text.

- [183] The second statement is misquoted. The text states "should not have." It has been qualified further in the FES.
- [184] Chronic effects are discussed later in the chapter and are stated to be unknown over the long term. Food chain effects are discussed in Chapter III.C.1.k.
- The field studies conducted to date are briefly reviewed in the text.
- [185] The Santa Barbara Channel research was conducted by members of the Southern California scientific community, and these statements were included to show that not all members of the scientific community agreed with the results.
- [186] The text has been changed to reflect these comments.
- [187-
188] Comments noted.
- [189] The text has been changed to reflect these comments.
- [190] Comment noted.
- [191] From the results of the oil spill trajectory model, most spilled oil would remain offshore Baja California. The statement in the text is that "any spills reaching the waters off Baja...would generally remain offshore..."
- The text has been qualified.
- [192] Comment noted.
- [193] This is discussed in Section III.C.1.b and III.C.1.g.
- [194] Comment noted.
- [195] No studies are known of that investigated the effect of chrome lignosulfonate on the food chain. Current research does point out that tri-valent chrome bound in chrome lignosulfonate is so tightly bound that chromium stays bound to lignosulfonate.
- [196-
209] Comments noted.
- [210] The prediction of 10 years for what might be termed "community recovery" for lack of a better term may not be long enough. This was primarily based upon studies of mussel bed recovery conducted in central California, however according to the

recovery studies conducted for BLM by Litter and co-workers most assemblages of the rocky intertidal require less than 10 years to reach a similar structure to that of before the spill.

The reference to the Canadian publication of (1978) dealing with cold water environments is not particularly useful in this case because of the differences in oil behavior and reproductive timing and processes in colder waters.

- [211] Comment noted.
- [212] Comment noted. Last sentence changed to read: "...overall adverse effects upon nekton are expected to be moderate at most as a result of the proposed action."
- [213] The statement is addressing "...members of the nekton other than fish." Caution must be exercised before making a statement such as "Oil kills fish eggs and larvae." All the evidence is not in yet nor is there an adequate or complete understanding of "natural mortality" of fish eggs and larvae.
- [214] Sentences deleted.
- [215] Comment noted.
- [216] Leasing of the San Diego tracts would not disrupt but cause a shift in military operations thereby causing no economic impact in the San Diego Region.
- [217] The ES discusses all potentially significant impacts attributable to the proposed project. This includes positive and negative impacts. Structures, as discussed in the ES, do function as both hazards and aids to navigation.
- [218] Probably, no better "lab experiment" concerning the effects of an oil spill could be arranged than the 1969 Santa Barbara spill. Like Santa Barbara, San Diego trades upon its environmental amenities, chief among which is its ocean area. The major differences between the two areas is a lower population, a smaller industrial base and a stronger anti-expansion attitude in Santa Barbara. The results of studies of the 1969 spill are that there was no significant reduction in the regional economy. There were localized losses involving individual businesses, but these losses were made up in increased business nearby. A tourism loss of approximately five percent was estimated for the county and temporary reductions in some property values occurred. The authors of the study* stated: "In the case of tourism, the

*Mead, W.J. and P.E. Sorensen. 1970, the Economic Cost of the Santa Barbara Oil Spill in: Santa Barbara Oil Symposium, Offshore Production, An Environmental Inquiry, DU16-18, 1970, N.C. Santa Barbara Sponsored by NSF and the Marine Science Institution UCSB - P202.

alternatives faced by society are so closely balanced that it cannot be shown that the minor diversions imposed by the oil spill resulted in a reduction in net recreational benefits for society."

If psychological aspects of oil spills are a significant factor in diverting would-be visitors, it was not evident in the Santa Barbara case, nor in the literature that we are aware of.

- [219] This statement was based upon the following two factors; 1) that bay flushing in Southern California is typically limited and 2) that any threat to the bay from a spill would be countered by installation of booms or air curtains. In checking Mission Bay hydrologic characteristics we find that 36 percent of the Bay's water is exchanged per tidal cycle and that tidal currents of up to 1.1 meter per second have been measured at the entrance when the tidal range was 2.1 meters. The diurnal tidal range is 1 to 3.5 meters. It thus appears that the validity of the first factor is not as great as assumed for this Bay and the Bay is subject to a greater risk of oil penetration than we initially thought. The statement in the ES is changed to reflect this.
- [220] Comment noted.
- [221] See response [217]. Statement added pertaining to increased impact potential on biota.
- [222] ES changed to reflect comment.
- [223] A centerline location for the platforms and other operations was assumed based on resource and facilities estimates. Exact locations cannot be determined at this time.
- [224] (Actually page 1141) It means that, if all cumulative projects discussed in Chapter I with an LNG facility at Point Conception were to take place, people would move from San Diego County to other counties such as Ventura and Santa Barbara to take jobs in those areas. This movement would also result in a decrease in demand for housing in the San Diego area.
- [225] Table II.G.1.e-1 describes existing solid waste disposal sites.
- [226] See response [220] above. A short discussion relating Santa Barbara data to San Diego has been added to the ES.

- [227] This section analyzes risks to various shoreline points occurring from the named groups of tracts proposed for leasing. Oil spill risk is statistically related to the volume of oil handled. Thus, the higher estimated reserves for San Pedro Bay tracts create a higher risk for any segment within a potential trajectory originating from that area. Segment 23 is thus hazarded by trajectories originating from groups of tracts designated P 18, 19, 20 and 21 in POCS Reference Paper No. VI. The overall risk that a spill will both occur anywhere on the proposed lease area and strike segment 23 is six percent, a relatively low risk level. If this unlikely event should occur, the enumerated losses would be incurred and the risk would be predominately from the north where higher reserves are estimated.
- [228] The term "minimal" was not used. This section deals with the impact of oil spills from platforms and, since oil spill occurrence is statistically related to the volume of oil handled, the low reserve estimates for this region mean a statistically low risk of having a spill. Since no segment had a risk exceeding 8 percent, a relatively low risk, potential loss was not computed for what is a highly unlikely event. If a spill did occur, the impact would vary in severity according to the statement in the first paragraph of Section III.E.12.b, to which a further explanatory sentence has been added.
- [229] Employment changes are given for San Diego County in Tables III.E.15.a-1, -2, and -6.
- [230] This section has been rewritten to take Proposition 13 into account.
- [231] This section has been augmented as suggested.
- [232] The Dana Point - San Diego area is expected to receive one percent of the total major oil spills resulting from Sale 48.
- [233] Appropriate modification to this section has been made.
- [234] The term "temporarily discontinued" was used to show the interval of disturbance is only temporary and not permanent. The length of time could vary from location to location.
- [235] Location of onshore facilities depends upon the discovery of resources, the quantity and kind of resources, geographic location, production rates and so on. Beyond these natural variables are political and economic structures, not the least of which are the State Coastal Commission, Regional Coastal Commission and Local Coastal Plans. Having precise or even general locational data for these facilities would simplify analytical process for staff considerably, but at this point the nature and location of onshore facilities is speculative.

- [236-237] Comments noted.
- [238] The statement is accurate as written.
- [239] Comment noted.
- [240] The budget levels for each State are determined by a formula described in Section 308 of the Coastal Zone Management Act of 1972 which includes acreage leased, volume of oil and gas produced, volume of oil and gas handled and new individuals employed in OCS activities.
- [241] Impact on military activities is discussed in Section III.C.4.
- [242] Statement has been deleted as suggested.
- [243] The paragraph has been clarified.
- [244] Last paragraph has been stricken.
- [245] The need for OCS oil and gas has been stricken.
- [246] References have been added for more current studies.
- [247-249] Comments have been addressed in Responses to CPO EIS Comments above.

Responses To:

Comprehensive Planning Organization of the San Diego Region

Appendix V

- [250] Cumulative mud and cuttings volumes and cumulative formation water mass emission rates are given in Section III.C.2. 100,000 barrels of mud would cover approximately 10 hectares if the mud was 10cm (4 in) deep. Ten km² equals one hectare.
- [251] Reference not found. No studies found to date have shown barite (BaSO₄) to be toxic in the marine environment.
- [252-253] Comments noted.
- [254] The significance of this statement is not understood.
- [255] Potential impacts on Tanner and Cortes Banks are discussed in Section III.C.1.j.i.
- [256] The F H₂O data given in this ES is based on resource estimates to the year 2000, not the life of the oil production field.
- [257] The information given in the ES is based on the best available information. At this time, F H₂O effluent salinity monitoring is not required by EPA or DOI (OCS operating orders).
- [258] See response [256] above.
- [259] Most of these estimates are close to the F H₂O dilution factor (needed to achieve ambient ocean water) given in the ES (Table III.C.2-1). Dilution factors given in Table III.C.2-1 were based on state-of-the-art trace metal analysis for water collected in the border land. Analyses were conducted by Dr. K. Bruland (University of California, Santa Cruz).
- [260] This statement is true as reflected in Table III.A-11. EPA and the U.S. Geological Survey will be responsible to see that operators maintain treated effluent oil and grease levels below the allowable limits specified under EPA (CFR) and DOI (Operating Orders) regulations.
- [261] The available information on formation waters from state waters as found in the 1976 UCLA report (referenced in ES), is generally found to be within the compositional range given in ES Table III.A-12.

- [262] This figure is the same as the total formation water produced for the Southern California Bight to the year 2000 given in Tables III.A-1 through III.A-6. The ES has been changed to reflect that the figure given is to the year 2000.
- [263] This estimate was taken from Table III.A-13, not III.A-10 and reflects the best available estimate to the year 2000. The table numbers have been changed in the text.
- [264] This is stated in Section III.C.1.i, Production Phase.
- [265] Heavy metal impacts on the benthos are covered in Section III.C.1.b. Food web impacts are discussed in Section IV.C.1.k.
- [266] Comment noted.
- [267] The intent of this comment is not clear.
- [268-270] Comments noted.

C. PUBLIC HEARING TESTIMONY AND RECORD

The Department of the Interior held 6 days of public hearings for the purpose of receiving views, comments, and suggestions relating to the proposed 1979 Outer Continental Shelf (OCS) Oil and Gas Lease Sale No. 48 for offshore Southern California. The hearings were held on Monday and Tuesday, October 23rd and 24th, 1978, at the Lobero Theatre, 33 E. Canon Perdido St., Santa Barbara; Thursday and Friday, October 26th and 27th, 1978 at the Convention Center, 300 Ocean Blvd., Long Beach and; Tuesday and Wednesday, October 31st and November 1st, 1978 at the Convention and Performing Arts Center, 202 C St., San Diego. Administrative law Judge William A. Hammett, from the Department of the Interior's Office of Hearings and Appeals, presided over all these hearings.

For the Santa Barbara hearings, the panel consisted of: Barbara Heller, Deputy Under Secretary, Department of the Interior (DOI); Charles P. Eddy, Deputy Assistant Secretary, Energy and Mineral (DOI); William E. Grant, Manager, Pacific OCS Office (DOI); and Ray Fritz, OCS Coordinator, Fish and Wildlife Service (DOI).

The panel for the Long Beach hearing was: Richard Myshak, Deputy Assistant Secretary for Fish, Wildlife and Parks (DOI); Ray Karam, OCS Program Coordinator (DOI); Henry L. Cullins, Pacific Area Geologist, U.S. Geological Survey (DOI); and William E. Grant.

Panel members for the San Diego hearing were: Gary Wicks, Deputy Assistant Secretary for Policy, Budget, and Administration (DOI); Heather Ross, Deputy Assistant Secretary for Policy, Budget and Administration (DOI); Ray Fritz, OCS Coordinator, Fish and Wildlife Service (DOI); and Henry L. Cullins.

Two hundred twenty-two persons submitted oral testimony during the six days of hearings. The following table categorizes their views.

SUMMARY OF HEARINGS TESTIMONY

	For Leasing	Neutral	Opposed
Santa Barbara	39 (42%)	8 (09%)	45 (49%)
Long Beach	17 (65%)	5 (19%)	4 (15%)
San Diego	31 (30%)	3 (03%)	70 (67%)
Total	87 (39%)	16 (07%)	119 (54%)

In addition to these oral statements, 127 letters were received by the Pacific OCS Office. One hundred opposed the sale, 27 favored the sale.

A complete transcript, 1083 pages, of the Public Hearings as well as all comments and letters pertaining to the proposed sale is available for inspection at the Pacific OCS Office, Bureau of Land Management, 7127 Federal Building, 300 N. Los Angeles St., Los Angeles, California 90012 and at the Office of Public Affairs, Bureau of Land Management (130) 18th and C St. N.W., Washington, D.C. 20240.

The following paragraphs will briefly summarize the key points expressed by those in favor of and those opposed to proposed Sale No. 48. THESE VIEWS ARE NOT NECESSARILY THOSE OF THE DEPARTMENT OF THE INTERIOR.

Testimony Favoring Proposed Sale No. 48. Nearly all those testifying in favor of the proposed sale emphasized one or more of the following points: 1) The U.S. is not self-sufficient in oil and gas. 2) Imports have soared in the last 10 years to \$45 billion per year in 1978. This rate is continuing to increase. 3) The condition has led to a) serious negative balance of payments, \$20 billion this year, b) the devaluation of the dollar abroad, c) a weakened international position strategically, d) increased inflation (which it was stressed is particularly hard on retired persons with fixed incomes), e) increased unemployment, f) disproportionately severe economic effects on minorities. 4) California only produces half the oil and gas it uses. The "oil glut" is due to distributional problems with imported oil, not a surplus. 5) Potential natural gas reserves would reduce dependence on dirtier fuels in California, e.g., coal and oil. 6) Offshore oil has an outstanding safety record with over 22,000 wells drilled and only 4 serious spills. 7) Technology has greatly improved in the last several years and chances of a spill now are even less than before. 8) Oil spill risks from tankers are far greater than from OCS production. Therefore, tankering foreign oil in, presents a greater pollution threat than developing our own and piping it ashore. 9) No long-term negative impacts have been proven to result from oil spills. 10) Less than 5 percent of the U.S. OCS area is under lease. 11) Our standard of living cannot be maintained unless we reduce our foreign energy imports. Offshore oil and gas production offers the best way in which to do this. 12) Alternate energy sources cannot be brought on line for many years and, in the interim, we must reduce foreign energy imports.

The individuals nearly all expressed concern with the quality of the environment, but felt that new technology and new regulations provide adequate safeguards to warrant supporting proposed Sale No. 48. It is interesting to note that the marine seaweed harvesting company, Kelco, and the American Tuna Boat Association both support the proposal. The Western Fishboat Owners Association, however, is opposed to the proposal.

Some individuals and organizations supported the project with certain conditions. For example, the State Coastal Commission supports the proposed sale with certain provisions including deletion of the 21 tracts

within 6 miles of the Channel Islands. The California Interagency Tanker Task Force wants to be assured of adequate separation distances between the vessel Traffic Separation Scheme and offshore structures. Mr. Marsh of the law firm of Nausman, Kruger, and Marsh felt that subsea completions should be used to minimize visual impacts.

In summary, those in favor felt that offshore oil and gas exploration/production was essential to relieve the serious economic, social, and strategic conditions which have resulted from this country's dependence on foreign oil and gas. They feel current technology and regulations will protect the environment.

Testimony Opposing Proposed Sale No. 48. Most opposition testimony could be grouped into one of four categories: 1) the oil and gas are not needed, 2) environment will be degraded, 3) economic hardships will result from the sale, and 4) the DES was inadequate.

Many individuals testified that the oil and gas resources were not needed at this time. Because these are non-renewable resources they should be saved until there is a critical need. California has more oil than it can currently handle, so why search for more? Others felt that current technology was adequate to provide alternate energy sources, such as solar and geothermal. Mr. Norris testified in Santa Barbara about the successful dilution of gasoline with methyl alcohol - in Brazil. Conservation was felt to be a viable alternative to the sale by some witnesses.

Environmental degradation centered on oiled beaches and the presence of platforms disrupting ocean views. Many individuals expressed their concern about having surfboards, wetsuits, diving equipment, jogging shoes, boats and themselves contaminated with spilled oil. They were very concerned about "forced changes" in their lifestyles as a result of polluted water and polluted beaches. Fear of not being able to obtain sea food, as a regular part of their diet, was mentioned by some individuals.

Strong concern was raised over reduced air quality because of the sale. All areas involved are presently unable to meet Federal air quality standards. This proposed sale would further exacerbate this situation.

Environmental degradation, in the form of losses to marine life, was discussed by many. Birds and marine mammals were emphasized and it was pointed out that both these animal groups are very vulnerable and that once oiled, birds and, to a lesser extent, marine mammals, rarely recover. Considerable concern was voiced over disruption of the migratory path of the endangered California grey whale. Some divers expressed fears that some of the best dive sites along the coast could be ruined. Some people felt there was a need for offshore development but that it

should not occur in the Southern California area, which they believe is more fragile and valuable than other OCS areas.

Directly tied to environmental degradation were concerns for economic hardships. Many hotel and motel owners discussed losses which would result from chronic low level pollution and the disastrous consequences of a large spill. The Western Fishboat Owners Association was concerned over the contamination of their boats, reduced catches and space use conflicts. Santa Barbara and San Diego both rely heavily on their "quality environments" to attract businesses and tourists. Many stated any deleterious changes in their environments would produce serious economic hardships.

The DES was considered inadequate by some. The Department was also charged with a lack of cooperation and failure to respond to local input. Scientists testified that the known data base was inadequate to accurately predict the impacts of the proposal. Some suggested a delay of 5 years, or more, while this additional data was obtained. The oil spill and air quality models were both criticized specifically as being inadequate and/or unrealistic.

In summary, opposition centered around the ideas that: 1) the oil is not needed now, 2) marine life would be severely harmed, 3) the life style of local residents would be changed, 4) economic hardships would result, and lastly 5) that not enough data is available yet upon which to base the decision to lease.

D. Endangered Species Consultation and Coordination.

The following section lists the consultation undertaken by BLM as required by the January 4, 1978 Endangered Species Regulations (Part 402.4 Interagency Cooperation):

Memorandum

To: Director, Fish and Wildlife Service
Deputy
Through: Assistant Secretary, Land and Water Resources
From: Director, Bureau of Land Management
Subject: Endangered Species Consultation

1978
APR 24 1978
GARY J. WILSON

In order to comply with the January 4, 1978 Endangered Species Regulations (Part 402.4 Interagency Cooperation), we are formally requesting consultation concerning the effects of proposed Outer Continental Shelf (OCS) Oil and Gas Lease Sale No. 48 upon endangered and threatened species offshore Southern California. We are also including species which are proposed for inclusion on the endangered and threatened list. Since these species are not subject to formal consultation under Section 7, we are requesting an informal consultation on these proposed species.

We feel that some of the following species (Enclosure 1) could be affected in the event of an oil spill or during pipeline construction, onshore construction or offshore motor boat activity. The environmental statement for proposed OCS Sale No. 48 will identify the potential impacts.

Some of the information sources used to determine potential impacts on the species are listed in Enclosure 2. Also, for your information we have included a copy of our consultation request to the NMFS.

Please mail your comments to the Pacific OCS Office, 300 North Los Angeles Street, Room 7127, Los Angeles, California 90012. We look forward to your assistance and cooperation in this matter.

Arnold E. Fry

ACTING

relate

Enclosures

cc:

DDRF-B

710 720

(All OCS Offices - Pacific OCS)

730 RF 732 RF Sale File #48

NSweeney:gpw:4-7-78:BLM 732:ext. 6264

Retyped:gpw:4-20-78

Mr. Terry L. Leitzell
 Acting Assistant Administrator
 for Fisheries
 National Marine Fisheries Service
 National Oceanic and Atmospheric
 Administration
 Department of Commerce
 Washington, D. C. 20230

APR 11 1978

Dear Mr. Leitzell:

In order to comply with the January 4, 1978 Endangered Species Regulations (Part 402.4 Interagency Cooperation), we are formally requesting consultation concerning the effects of proposed Outer Continental Shelf (OCS) Oil and Gas Lease Sale No. 48 upon endangered and threatened species offshore Southern California. We are also including species which are proposed for inclusion on the endangered and threatened list. Since these species are not subject to formal consultation under Section 7, we are requesting an informal consultation on these proposed species.

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Some of the information sources used to determine potential impacts on the species are listed in Enclosure 2. Also, for your information we have included a copy of our consultation request to FWS.

Please mail your comments to the Pacific OCS Office, 300 North Los Angeles Street, Room 7127, Los Angeles, California 90012. We look forward to your assistance and cooperation in this matter.

Sincerely yours,

Pacific OCS

Director

DDRF-C

710 720 Sale File #48

All OCS Offices, 730 RF 732 RF

NSweeney:ppw:4-3-78:BLM 732:ext. 6264

Retyped: 4-11-78

Retyped: ppw:4-20-78

2036

Director, Office of
Environmental Affairs
Room 7819
New State
Department of State
Washington, D. C. 20520

APR 11 1978

ATTN: Mr. Donald R. King

Dear Sir:

In compliance with the January 4, 1978 Endangered Species Regulations (Part 402.4 Interagency Cooperation), we are sending you copies of our requests for consultation with FWS and NMFS. The consultations are being initiated because the proposed activity, Outer Continental Shelf Oil and Gas Lease Sale No. 48, offshore Southern California, could affect certain endangered and threatened species.

Please mail your comments to the Pacific OCS Office, 300 North Los Angeles Street, Room 7127, Los Angeles, California 90012. We look forward to your assistance and cooperation in this matter.

Sincerely yours,

Director

Associate

Enclosures

cc:

DDRF-B

710 720

All OCS Offices

730 RF 732 RF

Sale File #48

NSweeney:cpw:4-7-78:BLM 732:ext. 6264

Enclosure I

Endangered And/Or Threatened Species
(and Proposed Species) Offshore Southern California
Which May Be Subject to Impacts

E = endangered, T = threatened, F = Federally listed, C = California list
P = proposed

Marine Mammals

Whales

Grey E F C

Humpack E F C

Pacific Right E F C

Fin E F C

Blue E F C

Sei E F C

Sperm E F C

Eschrichtius gibbosus

Megaptera novaeanglinae

Eubalena glacialis

Balaenoptera physalus

Balaenoptera musculus

Balaenoptera borealis

Physeter catadon

Marine Reptiles

Sea Turtles

Leatherback E F

Hawksbill E F

Green P E F

Loggerhead P E F

Pacific Ridley P E F

Dermochelys coriacea

Eretmochelys imbricata

Chelonia mydas

Caretta caretta

Lepidochelys olivacea

Enclosure I

Endangered and/or Threatened Species Which May be Subject to Impacts

E=endangered, T = threatened, F = Federally listed, C = California listed
P = proposed, N = California Native Plant Society (rare)

Terrestrial Mammals

Salt Marsh Harvest Mouse E C F	<i>Reithrodontomys raviventris</i>
Morro Bay Kangaroo Rat E C F	<i>Dipodomys heermanni morroensis</i>

Marine Mammals

Southern Sea Otter T F	<i>Enhydra lutris nereis</i>
------------------------	------------------------------

Birds

Brown Pelican E F C	<i>Pelecanus occidentalis</i>
Aleutian Canada Goose E C F	<i>Branta canadensis leucopareia</i>
California Clapper Rail E C F	<i>Rallus longirostris obsoletus</i>
California Least Tern E C F	<i>Sterna albifrons browni</i>
American Peregrin Falcon E C F	<i>Falco peregrinus anatum</i>
Light Footed Clapper Rail E F	<i>Rallus longirostris levipes</i>
Beldings Savannah Sparrow E F C	<i>Lasserculus sandwichensis beldingi</i>
San Clemente Loggerhead Shrike E F C	<i>Lanis ludovicianus mearnsi</i>
San Clemente Sage Sparrow T F	<i>Amphispiza belli clementeae</i>

Reptiles

San Francisco Garter Snake E F C	<i>Thamnophis sirtalis tetrataenia</i>
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Insects

El Segundo Blue Butterfly E F	<i>Shijimiaeoides battoides allyni</i>
Smith's Blue Butterfly E F	<i>Shijimiaeoides enoptes smithi</i>
Globenose Dune Beetle P E F	<i>Coelus globosus</i>

Enclosure I

Molluscs

Banded Dune Snail P E F

Helminthoglypta walkeriana

Plants (10 species)

San Clemente Broom E F C

Lotus scoparius traskiae

San Clemente I. Bushmallow E F C

Malacothamnus clementinus

San Clemente I. Larkspur E F C

Delphinium kinkiense

San Clemente I. Indian Paintbrush E F C

Castilleja grisea

No Common Name N P

Astragalus miguelensis

No Common Name N P

Astragalus pycnostachyus ssp.

lanosissium

Little Sur manzanita N P

Arctostaphylos edmundsii

Surf thistle N P

Cirsium rhotophilum

Saltmarsh bird's beak N P

Cordylanthus maritimus ssp.

maritimus

Prostate hosackia N P

Lotus nuttalianus

Partial Reference List

Literature

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- Pacific Coast American Peregrine Falcon Recovery Team. 1977. Pacific Coast Recovery Plan for American Peregrine Falcon (Draft). USFWS , 24 p.
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- Wilbur, Sanford R. 1974. The Literature of the California Black Rail. USFWS. Special Scientific Report, Wildlife No. 179. 17 p.
- _____. 1974. The Literature of the California Least Tern. USFWS Special Scientific Report, Wildlife No. 175. 18 p.
- _____. and Roy E. Tomlinson. 1976. The Literature of the Western Clapper Rails. USFWS Special Scientific Report, Wildlife No. 194. 31 p.
- National Marine Fisheries Service. 1976. Draft EIS Proposed Listing of the Green Sea Turtle (*Chelonia mydas*), Loggerhead Sea Turtle (*Caretta caretta*), and Pacific Ridley Sea Turtle (*Lepidochelys olivacca*) as Threatened Species Under the Endangered Species Act of 1973.

Personal Communication

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- Chamberland, Ed. FWS. Portland 1/30/77
- Freel, Maeton. FWS. Laguna Niguel 2/27/78
- Gorrell, Robert. NMFS. Washington, D. C. 2/78
- Griffin, James. Monterey 3/24/78
- Henry, Dan. BLM. Washington, D. C. 3/78
- Howell, John. BLM. Riverside Office 3/1/78
- Jacobson, Robert. BLM. Washington, D. C. 4/78
- Jureck, Ron. CFG. Team Leader Least Tern Recovery Team 3/78
- Lehenbauer, Phillip. FWS. Portland 2/78
- Lenhart, Dave. FWS. Portland 2/78
- Major, Mary. California Native Plant Society 3/17/78
- Mallette, Robert. CFG. Team Leader Peregrine Falcon Recovery Team 3/78
- Marshall, Dave. FWS. Portland 2/13/78
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- Murphy, Mary Beth. NMFS. Terminal Island 1/31/77
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Powell, Robert. California Native Plant Society. Davis, CA 3/14/78
 Sasaki, Ken. CFG. Team Leader Three-spined Stickleback Recovery Team 3/78
 Schreiber, Ralph. Los Angeles County Museum 2/27/78
 Sweeney, Nancy. BLM. Washington, D. C. 3/78
 Thorn, Robert. Rancho Santa Ana Botanical Gardens 3/17/78
 Vernimen, Richard. BLM. Washington, D. C. 3/78
 Vertal, Eldo. CFG. Team Leader. Santa Cruz
 Watson, Jay. FWS. Portland 2/13/78
 Wilbur, Sandy. FWS. Team Leader for California Condor and Light-Footed
 Clapper Rail Recovery Teams 3/78

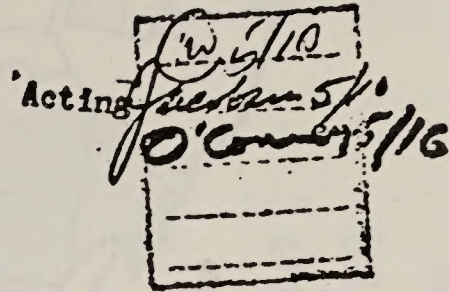


United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICE

FILE COPY
SERIALIZED



In Reply Refer To:
FWS/OES 375.0

MAY 17 1978

Memorandum

To: Director, Bureau of Land Management
From: Director
Subject: Section 7 Consultation - Proposed OCS Sale 43

We have received your request for initiation of Section 7 Consultation on the proposed Outer Continental Shelf (OCS) Sale 43.

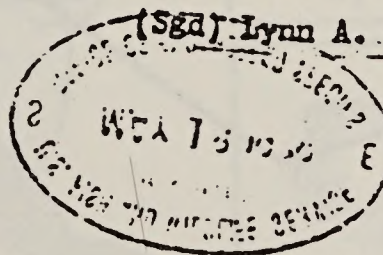
Because of the complexity of the subject, I am appointing a Section 7 consultation team to carry out the consultation process with the Bureau of Land Management (BLM). The following representatives are hereby appointed to the consultation team:

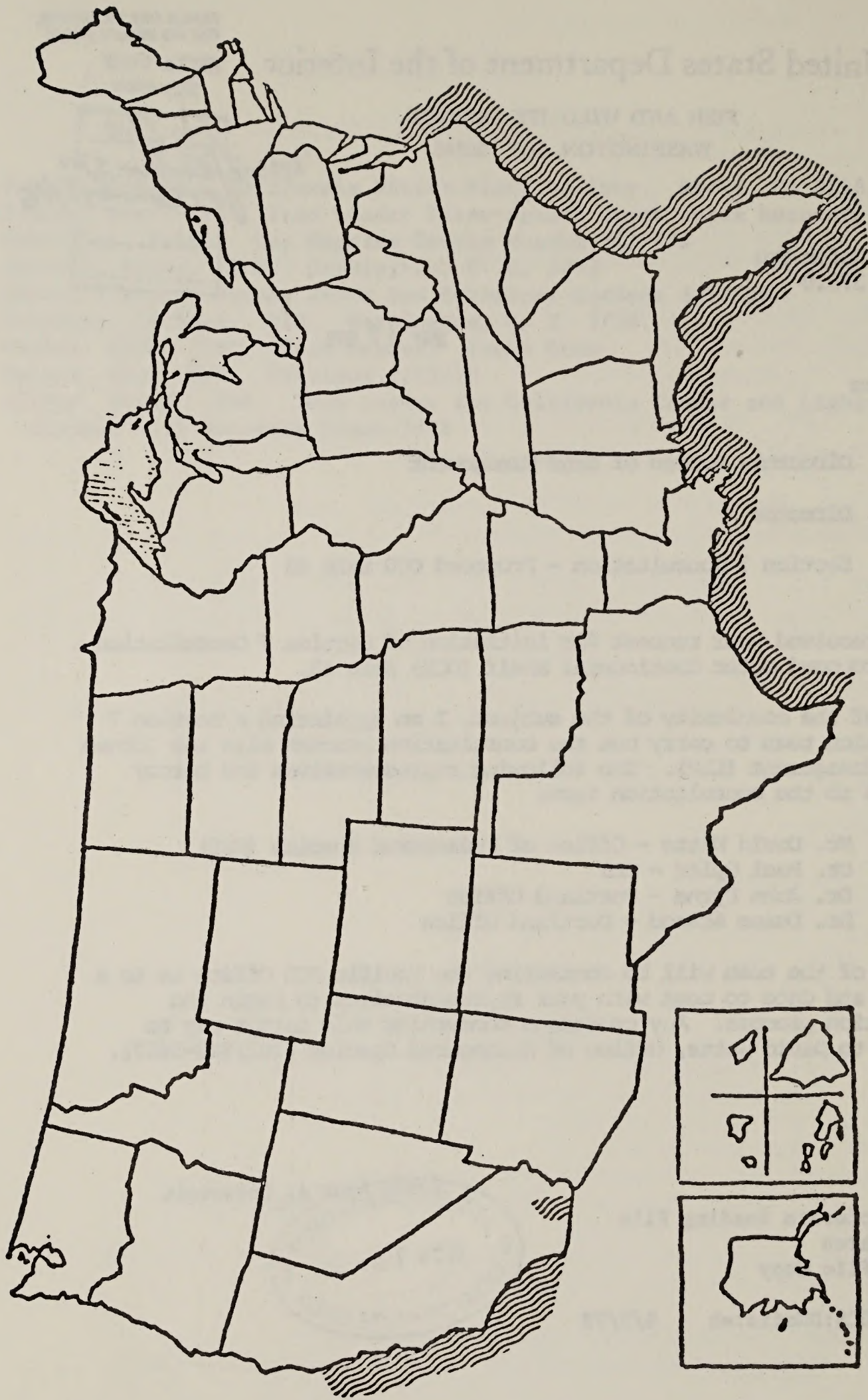
Mr. David Watts - Office of Endangered Species (OES)
Dr. Paul Opler - OES
Dr. John Byrne - Portland Office
Dr. Duane Atwood - Portland Office

A member of the team will be contacting the Pacific OCS Office as to a location and date to meet with your representatives to begin the consultation process. Any questions concerning this matter may be directed to David Watts, Office of Endangered Species (202/343-5667).

cc: Directorate Reading File
DD Chron
AFA File Copy

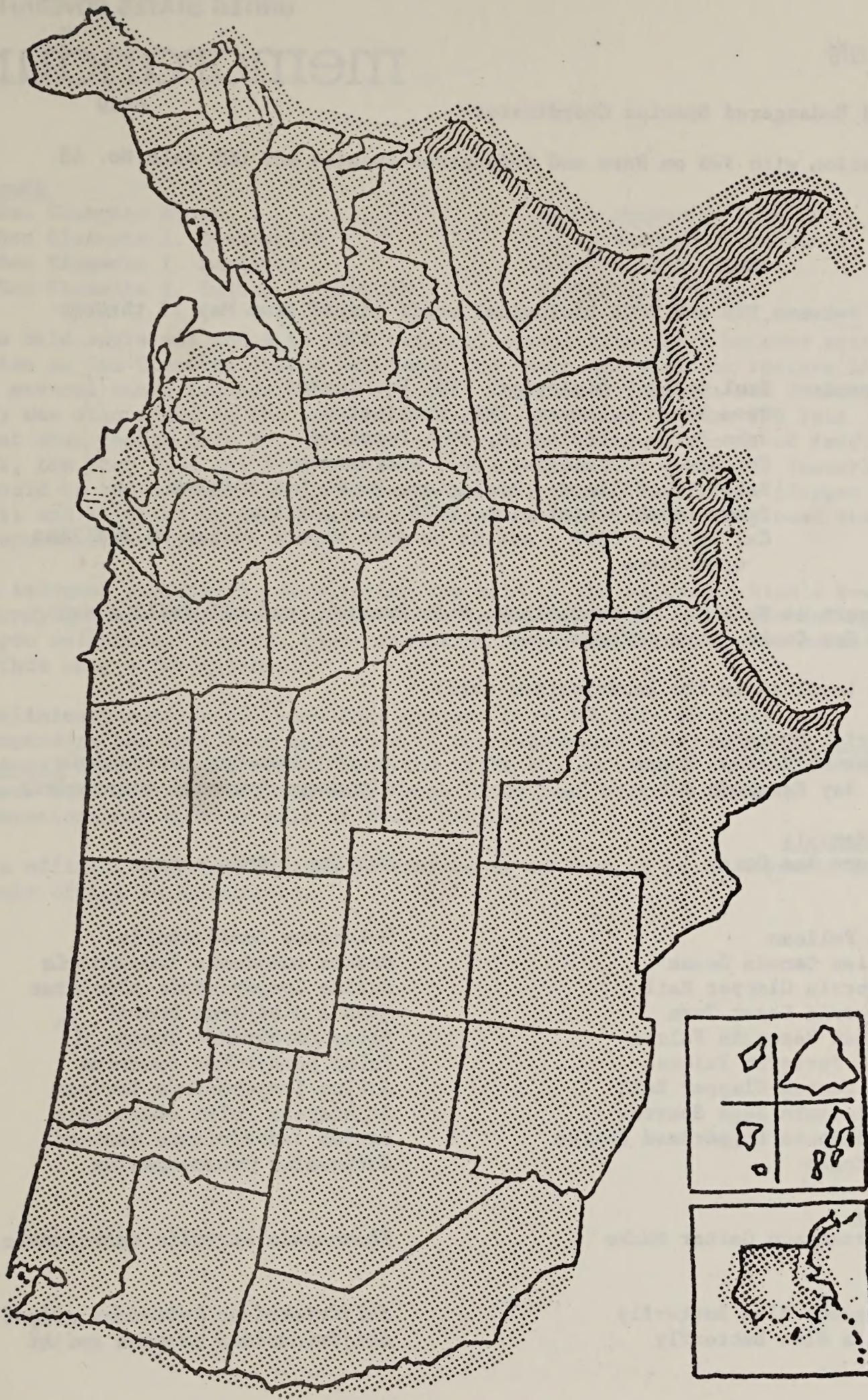
FWS/OES:DWatts:eb 5/9/78





Major U.S. Distribution of the
Brown Pelican (*Pelecanus occidentalis*)





Arctic Peregrine Falcon
(*Falco peregrinus tundrius*)

Areas of migration in the U.S. [stippled pattern]
 Nesting areas in the U.S. [cross-hatched pattern]
 Wintering areas in the U.S. [vertical line pattern]



memorandum

6840

DATE: JUL 11 1978

REPLY TO
ATTN OF: Rare and Endangered Species Coordinator

SUBJECT: Consultation with FWS on Rare and Endangered Species and OCS Sale No. 48

TO: File

Meeting between FWS and POCS biological staff lasted from May 23 through May 25.

Participants: Paul Opler - biologist, FWS, Washington
 Dave Watts - lawyer, FWS, Washington
 John Byrne - biologist, FWS, Portland
 Joe Dowan - biologist, FWS, Sacramento
 Robert M. Gillard - biologist, POCS, Los Angeles
 Steve Smith - biologist, POCS, Los Angeles
 Cal Weide - USGS - sat in to give expert advice on drilling operations

POCS expert on Sale No. 48 operations, Herb Emmrich, and oil spill model expert, Tom Cooke, gave information.

Species involved in the consultation were:

Terrestrial Mammals

Salt Marsh Harvest Mouse
 Morro Bay Kangaroo Rat

Reithrodontomys raviventris
Dipodomys heermanni morroensis

Marine Mammals

Southern Sea Otter

Enhydra lutris nereis

Birds

Brown Pelican
 Aleutian Canada Goose
 California Clapper Rail
 California Least Tern
 American Peregrin Falcon
 Arctic Peregrin Falcon
 Light Footed Clapper Rail
 San Clemente Sage Sparrow
 San Clemente Loggerhead Shrike
 Bald Eagle

Pelecanus occidentalis
Branta canadensis leucopareia
Rallus longirostris obsoletus
Sterna albifrons browni
Falco peregrinus anatum
Falco peregrinus tundrius
Rallus longirostris levipes
Amphispiza belli clementeae
Lanius ludovicianus mearnsi
Haliaeetus leucocephalus

Reptiles

San Francisco Garter Snake

Thamnophis sirtalis tetrataenia

Insects

El Segundo Blue Butterfly
 Smith's Blue Butterfly

Shijimiaeoides battoides allyni
Shijimiaeoides enoptes smithi



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

Plants

San Clemente Broom
San Clemente I. Bushmallow
San Clemente I. Larkspur
San Clemente I. Indian Paintbrush

Lotus scoparius traskiae
Malacothamnus clementinus
Delphinium kinkiense
Castilleja grisea

The bald eagle was added to POCS original consultation list because restoration on San Clemente Island has begun and there are plans to restore it to several other islands in the future. The tanker route in San Francisco Bay was also added to the geographic areas considered because FWS felt that even though Sale No. 48 would only replace an equal amount of foreign oil, the fact that oil from the sale could be spilled, potential impacts should be considered. The salt marsh harvest mouse, California clapper rail and Aleutian Canada goose are located in San Francisco Bay near the proposed activities.

An informal unofficial consultation was held on the saltmarsh bird's beak (*Cordylanthus maritimus* ssp. *maritimus*) and banded dune snail (*Hemithoglypta walkeriana*) because their inclusion on the official list is certain within only a few months.

Preliminary conclusions were that actions from OCS Sale 48 would not jeopardize the continued existence of any endangered species on the Federal list. Most critical were the Light Footed Clapper Rail, California Lease Tern and the unlisted Salt Marsh Birds Beak because clean up operations may destroy part of their habitat.

The official FWS opinion will be sent to us as soon as it is approved by their office in Washington.

Robert M. Gillard



United States Department of the Interior

FISH AND WILDLIFE SERVICE

WASHINGTON, D.C. 20240

ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICE

In Reply Refer To:
FWS/OES 375.4

SEP 1 1978

MEMORANDUM

To: Director - Bureau of Land Management
Acting

From: Director

Subject: Biological Opinion - Section 7 Consultation on the Impact of
Proposed OCS Sale No. 48 on Certain Endangered and Threatened
Species and their Habitats

By memorandum of April 24, 1978, you requested formal consultation on the proposed Outer Continental Shelf (OCS) Oil and Gas Lease Sale No. 48, offshore Southern California (map attached), as well as its impact on Endangered and Threatened species, and their habitats, identified on the list attached to your April 24 memorandum. The following listed species were, therefore, considered: salt marsh harvest mouse (Reithrodontomys raviventris), morro bay kangaroo rat (Dipodomys heermanni morroensis), southern sea otter (Enhydra lutris nereis), brown pelican (Pelecanus occidentalis), Aleutian Canada goose (Branta canadensis leucopareia), California clapper rail (Rallus longirostris obsoletus), California least tern (Sterna albifrons browni), American peregrine falcons (Falco peregrinus anatum), light-footed clapper rail (Rallus longirostris levipes), San Clemente sage sparrow (Amphispiza belli clementae), San Clemente loggerhead shrike (Lanius ludovicianus mearnsi), San Francisco garter snake (Thamnophis sirtalis tetrataenia), El Segundo blue butterfly (Shijimiaeoides battoides allyni), Smith's blue butterfly (Shijimiaeoides enoptes smithi), bald eagle (Haliaeetus leucocephalus), San Clemente broom, (Lotus scoparius traskiae), San Clemente Island bushmallow (Malacothamnus clementinus), San Clemente Island larkspur (Delphinium kinkiense), and San Clemente Island Indian paintbrush, (Castilleja grisea). The bald eagle was added for consideration in the consultation process at the request of your representatives on May 24, 1978. Since



the saltmarsh bird's beak and the banded dune snail are not listed, the requested consultation was provided as informal by separate letter.

In response to your request, I appointed a consultation team by memorandum of May 17, 1978 (copy attached), to assist me in determining whether the proposed OCS Sale No. 48 is likely to jeopardize the continued existence of the above listed species or result in the destruction or adverse modification of their Critical Habitat. The team was comprised of David Watts, Office of Endangered Species (OES); Paul Opler, OES; John Byrne, Regional Office, Portland, Oregon; and Duane Atwood, Regional Office, Portland, Oregon.

On May 23-25, the consultation team, with Joseph Dowhan (Area Office, Sacramento, California) replacing Mr. Atwood, met with your representatives to discuss the proposed OCS Sale No. 48 and the effects of the anticipated exploration, production, and development of the leased tracts on the Endangered or Threatened species listed above or their habitats at the OCS Office in Los Angeles, California.

The consultation team reviewed numerous reports, publications, and correspondence from knowledgeable sources on the subject species and, in addition, numerous telephone contacts were made with other experts. Information contained in the preliminary Draft Environmental Impact Statement (DEIS) for OCS Sale No. 48 was carefully evaluated to ascertain the effects of the exploration, production, and development on the listed species, which included anticipated onshore facility development, pipeline construction and location, oil spill risk considerations, transportation of the crews, transportation of the oil, and storage facilities and service areas. Copies of pertinent reports and documents were included in an administrative record maintained at the Office of Endangered Species and are incorporated by reference.

After a careful review of the findings by the consultation team, it is my biological opinion, subject to conditions identified in the biological summaries, that the proposed project is not likely to jeopardize the continued existence of the Endangered or Threatened species listed above or result in the destruction or adverse modification of their Critical Habitats. This biological opinion is based on the general information in the preliminary DEIS concerning possible effects of the proposed sale and does not relieve BLM of the continuing responsibility of reviewing its activities and programs in light of their Section 7 obligations. The

BLM must reinitiate Section 7 Consultation should new information reveal impacts of the identified activity that may affect listed species or their habitats, or if the activity is subsequently modified, or if a new species is listed that may be affected.

It is helpful during the review of the biological opinion to understand the relationship between the lease sale activities of the BLM and the subsequent approval of exploration and development plans by the USGS.

The BLM acts as agent for the Secretary, Department of the Interior, in processing bids on the advertised sales. After issuance of the lease, primary regulatory authority for the exploration, production, and development of the lease tracts shifts to USGS and other Federal agencies. The projected development schedule (copy attached) identifies the various steps requiring USGS approval and approximate time frames for completing production after the award of a lease.

A summary of the biological data and considerations of the consultation team are provided below for all 19 Endangered or Threatened species considered in this consultation.

Salt marsh harvest mouse (Reithrodontomys raviventris)

The salt marsh harvest mouse was first listed as Endangered on October 13, 1970. The species is found only in salt and brackish marshes surrounding San Francisco Bay where it is endangered because of loss of habitat due to land development. Two subspecies are recognized, one in south San Francisco Bay and the other in north San Francisco Bay, San Pablo Bay and Suisun Bay. The southern subspecies is the most restricted. At least 20 populations exist in remaining Salicornia-Spartina marsh habitat at Mowry Slough, Greco Island, Palo Alto, Bair Island, Corte Madera, Tubbs Island, Petaluma Creek, San Pablo Creek, Avon, Simmons Island, Joice Island and Grizzly Island. Critical Habitat has not yet been determined for this species. This rodent shares with only a few desert mammals the unusual ability to drink saltwater on a sustained basis.

Since the oil spill risk from tanker traffic into San Francisco Bay is projected to be at most 3.5 spills in excess of 50 barrels over the life of the activity (22 years), the proposed OCS Sale No. 48 and the resulting exploration, production, and development is not likely to jeopardize the continued existence of the salt marsh harvest mouse. The projected backing-out of foreign oil occasioned by transporting a portion of Sale No. 48 oil into San Francisco Bay removes some degree of oil risk spill caused by "lightering" from the larger foreign tankers to smaller tankers/barges inside the mouth of the bay.

Morro Bay kangaroo rat (Dipodomys heermanni morroensis)

This species was listed as Endangered on October 13, 1970. Its total range in recent times consisted of an area about 12.4 km² (4.8 sq. mi.) on the south side of Morro Bay in San Luis Obispo County, California, immediately adjacent to the range of the banded dune snail (Helminthoglypta walkeriana). It occupies sandy soils, into which it burrows, with ample areas of open space which it requires for its escape maneuvers.

The population and range of the Morro Bay kangaroo rat has declined drastically in recent years, from 8,000 individuals over a 4.8 sq. mile area in 1957 to 3,000 on 1.75 sq. mi. in 1971. Breeding occurs during May and June. Few details are currently available on its life history and specific habitat requirements. Critical Habitat has been determined for this species and a copy of the determination is enclosed for your use.

The species is threatened by reduction of its essential habitat through land development, growth of plant cover and build-up of dead brush. Predation by house cats constitutes a major threat to its survival.

The range of the species relative to the activities generated from the proposed OCS Sale No. 48 indicate that the proposed sale is not likely to jeopardize the continued existence of the Morro Bay kangaroo rat.

Southern sea otter (Enhydra lutris nereis)

The southern sea otter was listed as Endangered on January 14, 1977. Historically, the southern sea otter was abundant along the California coast, with the population ranging from Baja California, Mexico, to the Straits of Juan de Fuca, Washington. Initial population decreases resulted from commercial harvest by fur traders during the 1800's, and the population was brought to near extinction at the turn of the century.

In 1938, the southern sea otter was identified off Point Sur, California, and that population has expanded to an estimated 1,856 animals (1976 census) with a range between Pecho Rock (San Luis Obispo County) and Soquel Point (Santa Cruz County). A few individuals have been sighted to the north and south of these range limits, and it is anticipated that the population will extend its range to the Channel Island area during the next 25 years. Critical Habitat has not yet been determined for this subspecies.

The southern sea otter is a resident predator in the California nearshore kelp forests (Macrocystis integrifolia), and seldom ranges beyond the

30-fathom depth curve. Its prey includes a variety of animals, and selection of prey depends upon whichever species are most numerous and available. Common prey include abalones, pismo clams, and sea urchins.

The proposed tanker route to transport oil produced from OCS Sale No. 48 tracts to San Francisco will occur approximately 50 miles off shore. The oil spill risk for tanker traffic for the life of the project is minimal.

The water currents, wind directions and other climatic variables, including temperature would operate to push any spillage southward. The range of the southern sea otter is so removed from the impact and activity resulting from proposed OCS Sale No. 48 that the proposed sale is not likely to jeopardize the continued existence of the southern sea otter.

Brown pelican (Pelecanus occidentalis)

The brown pelican was listed originally as Endangered on October 13, 1970. The California brown pelican is a permanent resident of the proposed OCS Sale No. 48 area and nests on Anacapa Island. Birds which breed in Mexico use the Southern California Bight area as a feeding ground. Brown pelicans have been observed feeding along the shoreline of Anacapa Island. Incubating birds have been sighted, in aggregations of 20 to 30 on a daily basis, in the intertidal zone of Anacapa Island. Nesting birds are very susceptible to disturbance and the California population is in a state of decline. Critical Habitat has not yet been determined for this species.

The major prey are small fish which the pelican catches by plunge-diving in coastal waters. Brown pelicans are rarely found away from saltwater and apparently do not venture more than 20 (32 km) miles out to sea. The impact of pesticides via the food chain has been noted as the primary cause of the current low population. Extensive manufacturing and use of pesticides which were ultimately ingested by the brown pelican has been noted as the primary cause of the current population decline of the California brown pelican.

Brown pelicans may be susceptible to oil spills and the resultant contamination of the plumage as they dive for food. This could contribute to direct mortality or result in secondary impacts of reduced hatchability of eggs that are oiled by an affected adult bird. Nesting birds could also be impacted by increased human activity in the vicinity of nesting colonies.

Neither of these potential impacts are considered to be of sufficient probability or magnitude to be likely to jeopardize the continued existence of the brown pelican as a result of exploration, production, and development from OCS Sale No. 48. However, any resulting activity or program authorized, funded, or carried out by a Federal agency which may affect this species, particularly those related to development activities in or near pelican nesting colonies will require Section 7 Consultation.

Aleutian Canada goose (Branta canadensis leucopareia)

The Aleutian Canada goose was listed as Endangered on March 11, 1967. This bird has been reduced on its Aleutian Island breeding grounds due to predation by foxes. Recently it has been found to migrate to coastal and central California for the winter months. A segment of the population uses the Suisun Marsh area near San Francisco Bay as a wintering site. A maximum of 18 birds has been sighted during the 1977-78 season. Four Aleutian Canada geese were sighted in Morro Bay during 1977-78, and one was identified on the Farrallon Islands. This segment of the population does not spend the entire winter in the Suisun Marsh area, but does reside in the general Sacramento River delta area for varying periods of time. These birds are subject to mortality by hunting, and have been shot east of Antioch; at Tyler Island near Walnut Grove; and at Liberty Island north of Rio Vista. Critical Habitat has not yet been determined for this subspecies.

The Aleutian Canada goose, while swimming, may be impacted by oil spills and resultant contamination of plumage. However, the range of the goose and its minimum exposure to OCS Sale No. 48 and the resulting exploration, production and development are not likely to jeopardize the continued existence of the Aleutian Canada goose. Any activity or program resulting from this proposed sale which is authorized, funded or carried out by a Federal agency and which may affect active wintering or staging sites of the Aleutian Canada goose will require Section 7 Consultation.

California clapper rail (Rallus longirostris obsoletus)

The California clapper rail was listed as Endangered on October 13, 1970. Its range is limited primarily to the salt marsh habitat of San Francisco Bay, with occasional reports from coastal marshes to the north and south.

The preferred habitat of the California clapper rail is the tidal salt-water marsh, intersected by numerous small tidal channels, and vegetated predominantly by pickleweed (Salicornia ambigua) and cord grass (Spartina foliosa). The largest concentrations were found in the north San Francisco Bay area during a 1973 clapper rail survey. No population estimates were generated by that survey. Critical Habitat has not yet been determined for this subspecies.

Since the oil spill risk from tanker traffic into San Francisco Bay is projected to be at most 3.5 spills in excess of 50 barrels over the life of the activity (22 years), the proposed OCS Sale No. 48 resulting

exploration, production, and development are not likely to jeopardize the continued existence of the California clapper rail. The projected backing-out of foreign oil occasioned by transporting a portion of Sale No. 48 oil into San Francisco Bay removes some degree of oil spill risk caused by "lightering" from the larger foreign tankers of smaller tankers/barges inside the mouth of the bay.

California least tern (Sterna albifrons browni)

The California least tern was listed as Endangered on October 13, 1970. It is a migratory bird, arriving each spring on the west coast of California and Baja California, Mexico to establish breeding colonies and to raise young. The California least tern occupies coastal habitats from the west side of Baja California to San Francisco Bay from April through early autumn.

A total of 775 nesting least terns were estimated at 29 colony sites in 1977. The known 1977 breeding population is the highest index figure recorded since annual surveys began. This total is 111 pairs greater than that reported in 1976, and 175 pairs greater than the 1975 figure. However, the reported increase is apparently due to the unprecedented and more extensive coverage by census personnel in 1977. Critical Habitat has not yet been determined for this subspecies.

The least tern usually chooses a nesting location in an open expanse of sand, dirt, or dried mud close to a lagoon or estuary where food can be obtained. Prey consists of small fish such as the northern anchovy (Engraulis mordax), deepbody anchovy (Anchoa compressa), jacksmelt (Atherinopsis californiensis), topsmelt (Atherinops affinis), California grunion (Leuresthes tenuis), shiner surfperch (Cymatogaster aggregata), California killifish (Fundulus parvipinnis), and mosquitofish (Gambusia affinis). A primary reason for their reduction in numbers has been attributed to the losses of feeding habitat, nesting habitat, and disruption of nest sites by humans.

Potential threats from proposed OCS Sale No. 48 are related to oil spills and to increased human activity in coastal areas where nesting colonies occur. Neither of these potential impacts are considered to be likely to jeopardize the continued existence of the California least tern. However, any activity or program resulting from this proposed sale which may impact active nesting sites or sites necessary for expansion of nesting (identified in the draft California Least Tern Recovery Plan), including location and operation of onshore facilities and oil spill clean-up activity, will require Section 7 Consultation.

American peregrine falcon (Falco peregrinus anatum)

The American peregrine was listed first as Endangered on June 2, and October 13, 1970 and Critical Habitat has been determined and identified in the August 11, 1977, Federal Register. This subspecies once occurred widely through much of North America from southern Alaska, southern Canada, the 48 conterminous States, and northern Mexico. The species is migratory in the northern portion of its breeding range, but is more or less resident to the south, including California. In California the species once occurred throughout the State where cliff faces and steep rocky slopes provided suitable nesting locations. The mountains, sea coast, and Channel Islands all harbored significant populations.

The species has suffered a drastic decline throughout its range due to reproductive failure stemming from biological magnification of chlorinated hydrocarbon pesticide residues in their avian prey. In California less than fifty pairs remain and the species has been extirpated on the Channel Islands.

At present, only two or three eyries exist in the area of consideration with Lucia and Morro Rock (both San Luis Obispo County), being the two definite locations. Considerable effort is being expended currently toward recovery of the species, chiefly through captive propagation and reintroduction. The Channel Islands include several sites where reintroduction efforts may eventually be made. Further natural expansion of American peregrines may be anticipated with the decreased usage of the offending pesticides.

The coastal falcons rely heavily upon marine birds as prey. The potential impacts on the American peregrine falcon from OCS Sale No. 48, including exploration, production, and development, would relate to preferred prey species becoming trapped in an oil spill and subsequently being fed upon by the falcon. There is no information to indicate whether falcons would be selective for or against oil-coated prey, or the effect of oil ingestion on the American peregrine.

The feeding habits of peregrines normally preclude or minimize ingestion of feathers from the prey. Given this consideration, this activity is not likely to jeopardize the continued existence of American peregrine falcons on the condition that any activity or program resulting from the proposed sale which is authorized, funded, or carried out and which may affect the species or its habitat, especially an area within ten kilometers of Lucia and Morro Rock, will require Section 7 Consultation.

Light-footed clapper rail (Rallus longirostris levipes)

The light-footed clapper rail was listed as Endangered on October 13, 1970. The original range extended from Santa Barbara County, California to San Quintin Bay, Baja California, Mexico. Currently, this subspecies probably occurs in 16 California marshes and at least two marshes in Baja California. Food consists of various invertebrates (crustaceans and molluscs) found in coastal marshes. Reasons for past decline have been attributed to hunting and loss of habitat. The most recent population estimates indicate that a maximum of 250 birds presently exist in California. Critical Habitat has not yet been determined for this subspecies.

Potential threats from proposed OCS Sale No. 48 are related to oil spills and to increased related human activity in estuarine areas where existing populations occur. Distribution is along approximately 200 miles of United States coastline from Goleta Slough in Santa Barbara County to the Tijuana Estuary in San Diego County. The potential impacts from an oil spill are not likely to jeopardize the continued existence of this subspecies, if the narrow entrances of southern California estuaries, as identified by the attached map, are protected by booms or other oil-deflecting equipment. However, any activity or program resulting from this proposed sale which is authorized, funded, or carried out by a Federal agency, and which may impact the light-footed clapper rail or its habitat (identified in the draft Light-footed Clapper Rail Recovery Plan) will require Section 7 Consultation.

San Clemente sage sparrow (Amphispiza belli clementae)

The San Clemente sage sparrow was listed as a Threatened species on August 11, 1977. This is a subspecies of the sage sparrow which occurs only on San Clemente Island. The sparrow's population is estimated at between 90 and 110 adults (1976) and is limited to low-lying brush marine terraces on the southwest-facing side of the island. These slopes, dominated by the shrub Lycium californicum, have been overgrazed by feral goats. This is thought to have been the primary factor which has led to the sparrow's present low population level. A U.S. Navy goat removal program may result in habitat recovery and concomitant population expansion by the sparrow. Critical Habitat has not yet been determined for this subspecies.

Exploration, production, and development activities from OCS Sale No. 48 are not likely to jeopardize the continued existence of the San Clemente sage sparrow. However, any activity or program authorized, funded, or carried out by a Federal agency which may affect this subspecies, particularly those related to development activities in or near its habitat, will require Section 7 Consultation.

San Clemente loggerhead shrike (Lanius ludovicianus mearnsi)

The San Clemente loggerhead shrike was first listed as Endangered on August 11, 1977. This subspecies of the widespread loggerhead shrike exists only on San Clemente Island. It is estimated that only 15 pairs of shrikes now exist on the island, a drastic reduction from previous levels. Change in habitat quality due to overgrazing by feral goats is thought to be the chief factor responsible for the bird's present status.

The shrikes feed primarily on large insects, but also eat small vertebrates on occasion. The birds forage over the eastern half of the island, but nest only in shrubby areas in a few steep canyons. The U.S. Navy is carrying out a management program in cooperation with the State to eliminate goats from the island and bring about the shrike's recovery. Critical Habitat has not yet been determined for this subspecies.

Exploration, production, and development activities are not likely to jeopardize the continued existence of the San Clemente loggerhead shrike. However, any activity or program authorized, funded, or carried out by a Federal agency which may affect this subspecies, particularly those related to development activities in or near its habitat, will require Section 7 Consultation.

San Francisco garter snake (Thamnophis sirtalis tetrataenia)

This subspecies was listed as Endangered on March 11, 1967. It ranges from northern San Mateo County southward along the east slope of the Santa Cruz Mountains to Santa Clara County and along the coast west of this region southward to Point Ano Nuevo in San Mateo County. It occurs in marshy vegetation bordering ponds and lakes. Less than 20 populations are currently known and each population probably consists of less than 50 adult individuals. Mortality among newborns is extremely high.

A current threat to the population status of this snake is land development that results in elimination of their essential habitat. Overcollection may also be a factor in its declining population status. Critical Habitat has not yet been determined for this subspecies.

The range of the San Francisco garter snake and the minimum exposure to activities relating to proposed OCS Sale No. 48 are such that the proposed sale is not likely to jeopardize the continued existence of the San Francisco garter snake.

El Segundo blue butterfly (Shijimiaeoides battoides allyni)

The El Segundo blue butterfly was listed as Endangered on June 1, 1976. This butterfly was determined to be Endangered since its habitat,

the El Segundo sand dune ecosystem, had been reduced from its original 35 square miles to a few 100 acres, only about 70 of which are currently occupied by the insect and its caterpillar food plants Eriogonum parvifolium. These remaining dunes at the western terminus of El Segundo Boulevard and between Vista Del Mar and Pershing Drive, at the western end of Los Angeles International Airport, depend upon a constant influx of sand from the ocean front to maintain or recover their active nature and to prevent stabilization. Critical Habitat has not yet been determined for this subspecies.

The range of the species relative to the proposed OCS Sale No. 48 indicates the proposed sale is not likely to jeopardize the continued existence of the El Segundo blue butterfly.

Smith's blue butterfly (Shijimiaeoides enoptes smithi)

Smith's blue butterfly was listed as Endangered on June 1, 1976, primarily due to extensive loss of habitat on the Monterey coastal dunes between seaside and the mouth of the Salinas River. Urbanization, highway construction, and introduction of exotic plants, particularly ice-plant (Mesembryanthemum spp.), have been the prime factors in habitat loss. Additional colonies of the butterfly occur in the Carmel River Valley, and on coastal bluffs from Carmel south to Lucia. On the coastal dunes, the Smith's blue butterfly and its caterpillar food plants, Eriogonum latifolium and E. parvifolium, presently exist only from Fort Ord north to the Salinas River mouth. Critical Habitat has not yet been determined for this species.

Since few onshore facilities are anticipated, OCS Sale No. 48 is not likely to jeopardize the continued existence of Smith's blue butterfly. However, any activity or program authorized, funded, or carried out by a Federal agency which may affect this subspecies, particularly those related to development activities in or near its habitat, will require Section 7 Consultation.

Bald Eagle (Haliaeetus leucocephalus)

The bald eagle was considered initially to have two subspecies when the southern bald eagle was listed originally as an Endangered species in the Federal Register on March 11, 1967. The entire species was listed as Endangered in 43 of the conterminous 48 States and Threatened in the remaining five States on February 14, 1978. The bald eagle populations occurring within the area which may be impacted by the proposed sale are listed as Endangered. This large bird, which lives in association with aquatic habitats - lakes; large rivers; oceans, occurs from Alaska south to northern Mexico. The eagle once nested on the Channel Islands and possibly the northern coast of Baja California, Mexico, but has been extirpated from these areas. Critical Habitat has not yet been determined for this species.

Reproductive failure due to biological magnification of chlorinated hydrocarbon pesticides in its carrion diet (principally fish) has been the chief cause for the eagle's decline and present status. Reintroduction of bald eagles to San Clemente Island has begun and similar future efforts on other Channel Islands are anticipated.

The two potential sources of impact to the eagle from proposed OCS Sale No. 48 are disturbance to its nests resulting from development of onshore facilities and the possibility of an oil spill reaching the coast and contaminating the food source of the eagle.

Impacts resulting from OCS Sale No. 48 are not likely to jeopardize the continued existence of this species. However, any activity or program resulting from the proposed sale which is authorized, funded, or carried out by a Federal agency and which may affect the species or its habitat, especially active nesting sites including San Clemente Island, will require Section 7 Consultation.

San Clemente broom (Lotus scoparius ssp. traskiae)

The San Clemente broom was listed as Endangered on August 11, 1977. It is a highly restricted species endemic to San Clemente Island off the coast of southern California. This bushing herb occurs on northeast facing slopes of rock outcrops on the island at elevations up to 200 meters above sea level. Little is known of most aspects of its life history, soil preferences, ecological amplitude, pollination and population dynamics. Detailed studies are scheduled to begin sometime in the fall of 1978. Critical Habitat has not yet been determined for this species.

Threats to the continued existence of this subspecies are the result of habitat modification by the browsing and grazing of feral goats and rooting of feral pigs. Competition with alien plant species may also constitute an important threat.

Exploration, production, and development activities from OCS Sale No. 48 are not likely to jeopardize the continued existence of the San Clemente broom. However, any activity or program authorized, funded, or carried out by a Federal agency which may affect this subspecies, particularly those related to development activities in or near its habitat, will require Section 7 Consultation.

San Clemente bushmallow (Malacothamnus clementinus)

This species was listed as Endangered on August 11, 1977. The San Clemente bushmallow is a low shrub endemic to San Clemente Island where it occurs on rocky canyon walls and grassy sites. Virtually nothing is

known of its present distribution on the island nor are most details of its life history and population dynamics known. Detailed studies are scheduled to begin in fall 1978 which will ultimately lead to a Recovery Plan. Critical Habitat has not yet been determined for this species.

The San Clemente bushmallow is threatened by the grazing and browsing activities of feral goats and the rooting of feral pigs. Competition with non-native species may also be a major threat to its existence.

Exploration, production, and development activities from OCS Sale No. 48 are not likely to jeopardize the continued existence of the San Clemente bushmallow. However, any activity or program authorized, funded, or carried out by a Federal agency which may affect this species, particularly those related to development activities in or near its habitat, will require Section 7 Consultation.

San Clemente larkspur (Delphinium kinkiense)

The San Clemente larkspur was listed as Endangered on August 11, 1977. It is of highly restricted geographic occurrence, being endemic to San Clemente Island. It is an uncommon species in the grasslands on the island, flowering in spring. Little information is currently available on most aspects of its life history and population dynamics. Population studies are scheduled to begin in fall of 1978. Critical Habitat has not yet been determined for this species.

This species of plant is threatened by grazing and browsing of feral goats and rooting of feral pigs. Moreover, competition with alien plants may constitute an important threat.

Exploration, production, and development activities from OCS Sale No. 48 are not likely to jeopardize the continued existence of the San Clemente larkspur. However, any activity or program authorized, funded, or carried out by a Federal agency which may affect this species, particularly those related to development activities in or near its habitat, will require Section 7 Consultation.

San Clemente Island Indian paintbrush (Castilleja grisea)

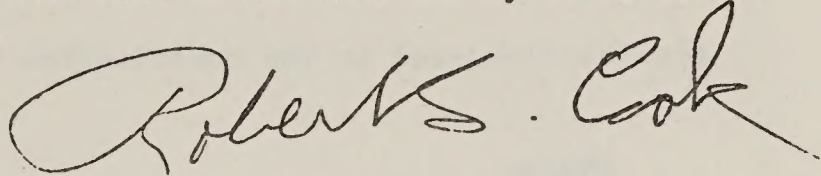
The San Clemente Island Indian paintbrush was listed as Endangered on August 11, 1977. It is endemic to San Clemente Island where it occurs infrequently on cliffs and bluffs. Little information is currently available on the life history and population dynamics of this shrubby and root-parasitic plant. Detailed studies are planned to begin in fall 1978.

Threats to the continued existence of the San Clemente Island Indian paintbrush are principally habitat modification by the browsing and grazing of feral goats and rooting of feral pigs. Competition with alien plant species may also be an important threat. Critical Habitat has not yet been determined for this species.

Exploration, production, and development activities from OCS Sale No. 48 are not likely to jeopardize the continued existence of the San Clemente Indian paintbrush. However, any activity or program authorized, funded or carried out by a Federal agency which may affect this species, particularly those related to development activities in or near its habitat, will require Section 7 Consultation.

Conclusion

Based on the consultation team's review of the above information and other information and data available to the Service, it is my biological opinion that proposed OCS Sale No. 48, subject to the previously stated conditions, is not likely to jeopardize the continued existence of the Endangered and Threatened species considered herein or result in destruction or modification of their Critical Habitats or habitats likely to be determined as Critical in the future.

A handwritten signature in dark ink, reading "Robert S. Cook". The signature is written in a cursive style with a large, looping "R" and a distinct "C" at the end.

memorandum

DATE: JUL 28 1978

REPLY TO
ATTN OF: Rare and Endangered Species Coordinator

SUBJECT: Consultation with NMFS on Rare and Endangered Species and OCS
Sale No. 48

TO: File

6840
EIS Sale 48

The consultation between National Marine Fisheries Service and POCS staff was held on July 17, 1978.

Participants:	Eugene T. Nitta	NMFS; Terminal Island, CA
	Jim Lecky	NMFS; Terminal Island, CA
	Thomas R. Laughlin	NMFS; Washington, D.C.
	Robert M. Gillard	POCS; Los Angeles
	Gordon A. Reetz	POCS; Los Angeles
	Ed Kreppert	USGS; Los Angeles, Los Angeles, sat in to give expert advice on drilling operations.

POCS oil spill model expert, Tom Cooke, gave information on the oil spill model used in Sale 48 E.S. Don Krotzen of USGS was asked in to give expert information on the intensity and distance traveled by underwater sounding devices.

Species discussed in the consultation were:

Whales

Grey
Humpback
Pacific Right
Fin
Blue
Sei
Sperm

Eschrichtius gibbosus
Megaptera novaeangliae
Eubalena glacialis
Balaenoptera physalus
Balaenoptera musculus
Balaenoptera borealis
Physeter catodon

Marine Reptiles
Sea Turtles

Leatherback

Dermochelys coriacea

An informal unofficial consultation was held on the proposed Guadalupe fur seal, *Arctocephalus townsendi* and the following sea turtles:

Green
Loggerhead
Pacific Ridley
Hawksbill

Chelonia mydas
Caretta caretta
Lepidochelys olivacea
Eretmochelys imbricata



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The informal consultation was held because these species will probably become listed as endangered or threatened during this calendar year.

Preliminary conclusions were that action from OCS Sale 48, specifically oil spills, could possibly jeopardize the continual existence of the Pacific Right Whale. It was the opinion of the NMFS staff that since this species' population is at such a low level, estimated world wide population of 150-200, and that it migrates off the coast of California, although last sighted in the Southern California Bight in 1955, the Right Whale could be adversely impacted by the OCS Sale 48.

The preliminary conclusions on the remaining species considered for formal and informal consultation were that action from OCS Sale 48 would not jeopardize their continual existence. Another preliminary conclusion was that the Southern California Bight population of Guadalupe fur seals could be severely impacted and possibly extirpated as a result of the action of OCS Sale 48. But probably not have a major effect on the world wide population of Guadalupe fur seals.

The official NMFS opinion will be sent to POCS as soon as it is approved by their Washington office.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Washington, D.C. 20235

F33/TRL

732
RECEIVED

AUG 21 1978

Mr. Frank Gregg
Director, Bureau of Land
Management
Department of the Interior
Washington, D.C. 20240

AUG 22 1978

OFFICE OF THE DIRECTOR
BUREAU OF LAND MANAGEMENT

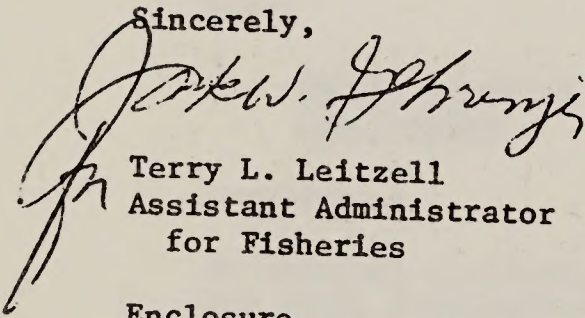
Dear Mr. Gregg:

Enclosed is the biological opinion resulting from the threshold examination on the impact of the proposed Outer Continental Shelf oil and gas lease/sale area Number 48 in the Southern California Bight. This opinion constitutes the National Marine Fisheries Service's biological opinion as required under Section 7 of the Endangered Species Act of 1973. The biological opinion states that the identified activities probably would not jeopardize the continued existence of the species in question with the possible exception of the Pacific right whale should it come in contact with an oil spill.

The Bureau of Land Management should reinitiate consultation if new information becomes available on possible impacts of the above activities on endangered or threatened species or their habitats, if modifications are made in these activities, or if a new species is listed which may be affected by these activities.

We look forward to continued cooperation in future consultations.

Sincerely,


Terry L. Leitzell
Assistant Administrator
for Fisheries

Enclosure

Endangered Species Act

Section 7 Consultation - Threshold Examination

Agency: Bureau of Land Management

Activity or Program: Proposed OCS Lease/Sale No. 48

Consultation Conducted by: National Marine Fisheries Service
Regional Director, Southwest Region

Threshold Examination

By memorandum of May 30, 1978, the Director of the Bureau of Land Management (BLM) requested formal consultation on the proposed Outer Continental Shelf (OCS) oil and gas lease/sale No. 48 in the Southern California Bight according to regulations promulgated under Section 7 of the Endangered Species Act of 1978. To assist me in responding to this request, a team was appointed consisting of representatives from National Marine Fisheries Service (NMFS) Southwest Region and the Central Office. Although not participating as team members, the Southwest, and Northwest and Alaska Fisheries Centers were helpful in providing information used in the formulation of our biological opinion.

The threshold examination was initiated on May 30, 1978 and formal consultations began on July 17, 1978 when the team met with representatives of BLM in Los Angeles to discuss possible adverse impacts of OCS oil and gas lease/sale No. 48 and associated activities on endangered and threatened species under the purview of NMFS.

After reviewing available information and discussing the proposed lease/sale with BLM, the consultation team concluded that the identified activities probably would not jeopardize the continued existence of the species in question with the possible exception of the Pacific right whale (Eubalaena glacialis), should it come in contact with an oil spill.

Biological Opinion

The whale species most likely to be impacted by OCS gas and oil lease/sale related activities in the Southern California Bight is the gray whale (Eschrichtius robustus). The majority of the gray whale population traverses the Bight on its migration to the calving and breeding lagoons of Mexico and again on its return migration to its feeding grounds in the Arctic.

Because of the infrequency of major oil spills the gray whale is more likely to be impacted by exploratory, developmental, and support related activities than by catastrophic events such as large oil spills. Our concern is that increased noise levels from exploration, construction, and drilling coupled with increased navigational hazards from freighter traffic, platform support vessels, and platform construction may cause the gray whales to assume an altered migratory route, the effects of which we are unable to predict at this time.

The blue whale (Balaenoptera musculus), fin whale (Balaenoptera physalus), sei whale (Balaenoptera borealis), humpback whale (Megaptera novaeangliae), and the sperm whale (Physeter catodon) all occur in the area of lease/sale No. 48, however, their populations are widely distributed in the North Pacific and do not migrate along routes as restricted as those of the gray whale. Therefore we concluded that the effects of lease/sale No. 48 on these populations is likely to be minimal.

The Pacific right whale (Eubalaena glacialis) is of a major concern to us. The North Pacific Population is severely endangered, numbering only about 220 individuals and normally is not as pelagic as the large rorquals. Any adverse impact experienced by this population is likely to be severe simply because of its low numbers.

Unfortunately, there are few data available pertaining to the effects of oil spills on cetaceans. Some of the adverse effects which could result from contact with an oil spill include eye damage, inhalation of toxic fumes and aerosols, ingestion of oil, and fouling of baleen plates. The North Pacific right whale population probably appreciates a very low recruitment each year. Should it experience any mortality from the above causes its chances of survival could be severely impaired.

In addition to the Endangered whales, there are four species of listed sea turtles that occur within the boundaries of lease/sale No. 48. The breeding populations of the Green sea turtle (Chelonia mydas) and the Pacific ridley sea turtle (Lepidochelys olivacea) off the Pacific coast of Mexico and all populations of the leatherback sea turtle (Dermochelys coriacea) are listed as endangered. The loggerhead sea turtle (Caretta caretta) is listed as threatened over its entire range. The turtles seen in the lease/sale area represent small transient portions of their respective populations. They are apparently feeding at the northern limits of their ranges and are not known to nest here. There is no historical evidence of any nesting beaches north of Guerrero Negro Lagoon, Baja California Sur, Mexico, and there are no known nesting beaches remaining on the Baja Peninsula.

Therefore, it is our opinion that lease/sale No. 48 will have no more than minimal impacts on any of the listed sea turtle populations.

Recommendations

We recommend that BLM undertake a study to determine the effects of OCS gas and oil development on the migration of gray whales through the Southern California Bight. As NMFS conducts substantial research on whales any studies that BLM undertakes should be coordinated with NMFS to avoid duplication and to allow for complementary research. Further, we recommend that BLM modify their EIS by changing the potential impact of oil spills on the Pacific right whale from moderate to severe. Finally, should more data indicating potential adverse impacts on the listed species of whales and sea turtles become available or should another species be listed as endangered or threatened, we recommend that consultation be reinitiated.

Response to NMFS:

UNITED STATES GOVERNMENT

memorandum

OCT 18 1978
DATE: 9/27/78

REPLY TO
ATTN OF: Gordon Reetz

1742-6840

Lease Sale 48

SUBJECT: National Marine Fisheries Service Section 7 Consultation for Lease Sale #48.

TO:
File 1740 NC 6840

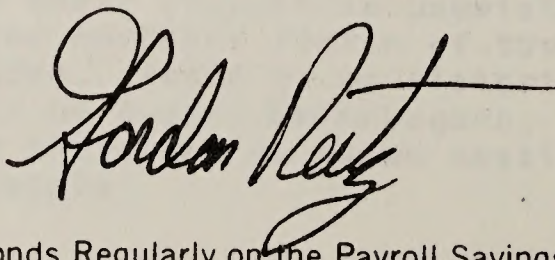
In a letter, dated 8/22/78, the NMFS made several recommendations in compliance with Section 7 consultation procedures of the Endangered Species Act. This memo is a response to those recommendations.

The NMFS recommended that a study be initiated to determine effects of OCS oil & gas development on migration of gray whales. The BLM presently has under contract, with the University of California, Santa Cruz, a study that will provide a charting of migratory patterns of gray whales through the Southern California Bight for the years 1976, 1977, and 1978. Future studies that could conclusively prove OCS oil and gas development activities have an adverse impact upon gray whale migratory patterns would be very difficult if not impossible to do. Other offshore activities, recreational boating and whale watching cruises, for example, are also on the increase and might be contributing to or the total cause of, any changes in migratory patterns of gray whales.

The NMFS also considers that the potential impact of oil spills on the Pacific right whale is such that the impact classification of 'moderate' should be changed to 'severe'.

A moderate impact, as defined in the EIS, is one in which 6-15 percent of the population is either injured, destroyed, or displaced. A severe impact is one where more than 30 percent of the population is impacted. Only one right whale has been sighted in the Southern California Bight since 1955. It seems that the 'moderate' impact designation, although maybe overstated, is a fair prediction of possible future impacts. An impact to more than 30 percent of the right whales population as a result of lease sale #48, is not possible.

The current designation of impacts with descriptive terms are misleading and probably responsible for the NMFS recommending a change in the designation of the Pacific right whale from 'moderate' to 'severe'. Indicating as 'moderate' an impact that could kill 6-15 percent of an animals population is unintentionally deceptive.



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NOV 20 1978

Mr. Frank Gregg
Director, Bureau of Land
Management
U.S. Department of the Interior
Washington, D.C. 20242

Dear Mr. Gregg:

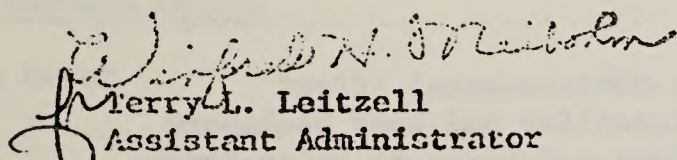
On July 17, 1978, pursuant to regulations promulgated under Section 7 of the Endangered Species Act of 1973 (ESA), the National Marine Fisheries Service, Southwest Region, conducted a formal consultation with the Bureau of Land Management's (BLM) Pacific Outer Continental Shelf (OCS) Office regarding the impacts of OCS Lease/Sale No. 48 on endangered species occurring in the Southern California Bight. At the same time, an informal consultation was also held on the impacts of OCS Lease/Sale No. 48 on species occurring in the area which were soon to be listed as endangered or threatened.

Our biological opinion (enclosed) submitted to the BLM on August 21, 1978, contained the statement that OCS Lease/Sale No. 48 would have no more than minimal impacts on these populations of green, loggerhead, and Pacific-ridley sea turtles.

To date we have gained no new knowledge that would cause us to change our opinion of the impacts of OCS Lease/Sale No. 48 on these populations of sea turtles. This letter and the enclosed biological opinion will fulfill Section 7 ESA requirements for a formal consultation.

We look forward to continued cooperation in future consultations.

Sincerely,


Terry L. Leitzell
Assistant Administrator
for Fisheries

Enclosure

cc: F, F6-Tyler, Loughlin, GCF, FSW, FSE, FNE
Drafted by: FSW31/JHL
F6:TRLoughlin:634-7461:11/20/78:pvt
RETYPE:F6:TRLoughlin:634-7461:11/27/78:pvt

E. CONSULTATION WITH CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

Dr. Knox Mellon
California State Historic
Preservation Officer
1220 "K" Street
Sacramento, CA 95811

Dear Sir:

Mr. William Seidel of your staff and Mr. Frank Maxwell of mine have been coordinating and consulting over the past several months concerning the potential effects of proposed OCS Sale No. 48 upon the cultural resources of the Southern California Bight region. The purpose of this letter is to formalize the agreement reached pursuant to 36CFR 300 requirements.

Discussions of cultural resources or pertinent mitigating measures appear in the Draft Environmental Statement, which your staff has, at the following pages:

page(s) 38	page(s) 1,241-1,242
" 307-309	" 1,256-1,257
" 422-442	" 1,280-1,281
" 610-618	" 1,300
" 973-993	" C14-17 (Appendix)
" 1,130-1,1185	" F3-5 "
" 1,228-1,235	" D1-6 "

The discussion in this letter relies heavily upon what is in the DES to avoid duplicative text when possible.

The California portion of the Area of Potential Environmental Effect (APEE) for oil spills, we have agreed, is the coastline and near backshore zone extending south to the International Boundary and north to Point Reyes, and including the ocean waters within the general Southern California Bight and the waters within approximately 50 miles of shore northerly of Point Conception. The use of an oil spill risk analysis model for the proposed sale and the resulting tanker leg to San Francisco Bay has permitted us to identify both those areas which have a significantly higher risk due to oil spills and those areas having an insignificant risk of being impacted. Only those areas having the risk of a large spill exceeding 10 percent are discussed. Sites exposed to visual alteration of the

environment are also included. For visual or other alteration of the environment (primarily due to offshore platforms), we have considered that portion of the shoreline from which potentially affected (proposed lease tract offerings) ocean areas may be seen. We have agreed that many sites identified by the State or by local interests may qualify for the National Register and we have included such sites in our consideration.

We have agreed that oil spills do not constitute a large threat to submerged cultural resources, but that spills reaching shore create the threat of damage due to the use of heavy equipment in cleanup activities.

For offshore cultural resources within the APEE, we have agreed that the potential for significant and National Register quality resources exists, but that to date, none have been located and identified precisely enough to say that they are going to be affected and in an adverse way.

We have agreed that the following significant cultural resources are within the APEE for the proposal; that they may or may not be affected, and the effect may or may not be adverse as indicated in the columns. The list includes National Register properties and others which may qualify as eligible for the National Register.

	<u>Effect Potential Established</u>	<u>Cause of Effect</u>	<u>Adverse Effect</u>
<u>San Mateo County</u>			
Pigeon Point Light Station (National Register)	Yes	Spill	Yes
Point Montara Light (National Register Eligible)	Yes	Spill	Yes
<u>Santa Barbara County</u>			
Burton Mound	Yes	Offshore Structure	No
Carpinteria and Village of Mishopshnow	No	Offshore Structure	
El Camino Real (Coast Highway)	Yes	Offshore Structure	Yes
Caviota Landing	Yes	Spill & Offshore Structure	Yes

	<u>Effect Potential Established</u>	<u>Cause of Effect</u>	<u>Adverse Effect</u>
Caviota Pass	Yes	Offshore Structure	Yes
Mescalitan Island	No		
Point Conception Vicinity (area of archeological sites and Native American religious significance)	Yes	Offshore Structure	Yes
Point Conception Light Station	Yes	Spill & Offshore Structure	Yes
Point Conception Railroad Station Site	Yes		
Santa Barbara Lighthouse	Yes	Offshore Structure	Yes
Whaling Camp	Yes	Spill & Offshore Structure	Yes
<u>Ventura County</u>			
Port Hueneme Old Wharf	Yes	Spill	No
Seaside Hotel	No	Offshore Structure	
San Nicolas Island	Yes	Spill	Yes
<u>Los Angeles County</u>			
Adamson House-Humaliwo (National Register)	No	Spill	
Battery Osgood-Farley (National Register)	Yes	Offshore Structure	
Point Fermin Lighthouse (National Register)	Yes	Offshore Structure	Yes

	<u>Direct Potential Established</u>	<u>Cause or Effect</u>	<u>Adverse Effect</u>
*SS Catalina (National Register)	*Yes	Spill	*Yes
Santa Monica Pier	Yes	Spill	Yes
Wayfarer's Chapel	Yes	Offshore Structure	Yes
Whaling Station Site	Yes	Spill & Offshore Structure	Yes
<u>Orange County</u>			
Lovell Beach House (National Register)	Yes	Spill & Offshore Structure	Yes
McFadden Wharf	Yes	Spill & Offshore Structure	Yes
<u>San Diego County</u>			
Cabrillo National Monument (National Register)	Yes	Spill & Offshore Structure	Yes
Hotel Del Coronado (National Register)	Yes	Spill & Offshore Structure	Yes
Initial Point of U.S./Mexico Boundary (National Register)	Yes	Offshore Structure	No
Old Point Loma Lighthouse (National Register)	Yes	Offshore Structure	Yes
Scripps Memorial Laboratory (National Register)	No	Offshore Structure	
Fort Rosecrans	Yes	Spill & Offshore Structure	Yes

*This vessel has been moved from Los Angeles Harbor and its vulnerability varies with location. We believe it is currently in Newport Bay where it is not particularly vulnerable.

Numerous archeological sites exist along the coastline though most, if not all, are above the area which would be contaminated by an oil spill.

We have interpreted the criteria of adverse effect very conservatively, identifying as adverse any alteration (usually visual) of the environment of the site, without reference to the severity of the potential impact or to the existing setting of the sites. The majority of the sites are in urban, highly altered settings, often with restricted views of the ocean.

There are general factors about the proposal which may be mitigatory. Not all tracts which may be offered for lease will necessarily be leased. If leased, considerable uncertainty exists about the prospects of finding hydrocarbons on the lease, and whether those found are economically producible. Offshore structures are removed at the end of the lease period (generally 20 to 40 years); therefore, their visual effect is temporary. The distance from shore that a producible field may lie is uncertain and could vary by greater than 3 miles within any tract, thus significantly altering the visual impact potential. Atmospheric conditions reduce visual impact by varying degrees. Finally, the nearest tract boundary is 3 miles from shore.

Several mitigatory measures are included in the proposal. There is a lease stipulation requiring cultural resource surveys if such resources are believed to be present, and also that any which are inadvertently discovered, be protected. A Notice to Lessees and Operators (NTL) requires certain instruments and survey patterns when such surveys are required. Secretarial Order No. 2974 requires that the U.S. Geological Survey seek review and recommendations from other Department of the Interior agencies including the Bureau of Land Management and the Heritage Conservation and Recreation Service in matters concerning lease permits and operations, including consideration of cultural resources. A Memorandum of Agreement regarding these cooperative procedures has been executed between BLM and USGS.

The Pacific OCS Office has a member on the oil spill Regional Response Team. This enables us to have input in the case of oil spill emergencies, so that cleanup activities will either avoid or minimize impacts on other valuable resources including archeological sites. The interaction with the team, as we foresee it, would involve identification of those sites within threatened shoreline segments, which may be damaged. Operations would then be directed to avoid this damage whenever possible.

Two means which may achieve greater mitigation have been discussed. These are the use of a lease stipulation which requires the reduction of the visual contrast of platforms by appropriate painting or other means and the other involves the correction of some shortcomings inherent in NTL 77-3. Some version of the visual contrast stipulation is being considered for inclusion in the FES in Section VIII.E.2 as a potential mitigating measure for consideration by the Secretary. Revisions to

NTL 77-3 are being made, with the Office of Interagency Archeological Services, Heritage Conservation and Recreation Service having the lead. State and local coastal plans and their environmental review processes are also mitigatory.

Since no cultural resource site is directly and certainly threatened by this proposal, alternatives cannot be identified and discussed. If, during the course of any development which might occur on the proposed leases, a significant site were discovered and threatened, then various alternatives such as avoidance, alteration of operating procedures or salvage would be studied, using appropriate expertisa.

Your concurrence that we have adequately identified the area of potential environmental effect, the significant cultural resources within that area, and the effect on those resources, will be appreciated. We also seek your concurrence that the mitigations identified are adequate to protect the values of any cultural resource sites which may be threatened.

Thank you for your review and the aid of your staff in conducting this analysis and consultation.

Sincerely,

Manager

FRM:onw/12-20-78

BLM Library
Denver Federal Center
Bldg. 50, OC-521
P.O. Box 25047
Denver, CO 80225

